



Maintenance Agreement Criteria

Video Components Preventative Maintenance

Once each 3 months, Hotwire will perform the following checks and services for video components listed in the town commercial services.

- Clean lenses and housing and check cameras for proper focus
- Review system logs for error messages and correct conditions
- Install applicable software updates and patches
- Check mounts and brackets to ensure fasteners are secure, free of rust/corrosion
- Check cables and connectors and signs of weathering, damage or other compromise
- Check software settings such as time/date, recording settings.
- Retrieve random segments of video from daytime and nighttime to ensure recording is working and images are acceptable.
- Check all cameras equipped with IR cut filter for proper operation.
- Replace any failed devices or components
- Check and replace consumables as necessary (filters, batteries, etc.)

Access Control Preventative Maintenance

Once each 3 months, Hotwire will perform the following checks and services for access control components.

- Check Doors covered by access control system for proper operation (eg: opens and closes without binding)
- Check logs for signs of forced doors, held doors, or other issues and bring to the attention of personnel as appropriate
- Check user database for credentials that have not been used for at least 30 days or other credentials that may be eligible for deactivation and bring to the attention of personnel as appropriate, and delete/deactivate those credentials if instructed.

- Verify proper operation of emergency egress doors
- Verify system complies with local fire/building codes as applicable.

Service and Standard Maintenance

Customer is entitled to the following as a part of this agreement:

- 24/7 Health monitoring of the entire system.
- Automatic dispatch for detected failures.
- Cleaning of outdoor devices as needed for optimal performance.
- Unlimited phone support
- Unlimited remote desktop support
- Software updates by device manufacturers installed at first available opportunity
- Overview training on new features delivered as part of software upgrades

PROPOSAL FOR SERVICES



Town of Golden Beach

1 Golden Beach Drive

Golden Beach, Florida 33160

PREPARED BY

Hotwire Security Team

9.26.22

Town of Golden Beach

Phase 2: Golden Beach Security Solution Enhancement

- **Camera and Failover Licensing**
- **NVR:** As Specified in Exhibit A
- **Archiver:** As Specified in Exhibit A
- **Cameras:**
 - Thermal Outdoor Bullets
 - PTZ (Pan-Tilt-Zoom) 2 MP H4 IR
 - 4x5 MP, WDR 2.8mm, Camera Only
 - Thermal Outdoor Bullets
 - PTZ (Pan-Tilt-Zoom) IR with Wipers* Ocean
 - PTZ (Pan-Tilt-Zoom) IR with Wipers* Intracoastal Bridge
 - PTZ (Pan-Tilt-Zoom) IR with Wipers* Intracoastal
 - *Town to provide water
 - MH 360° 5MP
 - Four (4) Lense camera
 - Pump Area IR
 - MH 360° 8MP
 - Four (4) Lense camera
 - PTZ (Pan-Tilt-Zoom) 2MP IR
 - Outdoor Bullet/Dome 6MP WDR IR Cameras
- **Misc Camera mounting:** Misc camera, IR rings, NPT adapters etc.
- Connector, Box, Wire, etc.
- Labor and Programming

Golden Beach Comparison Information - Exhibit A

	Request for Analysis by Customer	9/12/2022	
Performed By	Hotwire		

Item	Item Description	Hotwire	Variable Distinction
Thermal	Perimeter Thermal's Camera	33	16 HW
Multi lens	8MP Camera	6	6 HW
Multi lens	5MP Camera	19	9 HW
PTZ	PTZ Camera	11	19 IL
Fixed	4MP Fixed Camera	2	2 HW
Fixed	5MP Fixed Camera	0	20 IL
		Total Camera	
		71	
		Total Lens	
		122	
PTZ	Onboard Analytics	Yes	
PTZ	Onboard IR up to 300m	Yes	
PTZ	Self-cleaning Lens	Yes	
NVR	Sever Space	597TB	
Archiver	Archiver Space	976TB	
System	One Manufacture One Provider	Yes	
Analytic	Analytic Cost	\$0	
Network	Managed Hardened Cisco	Yes	
	Signamax	No	
Fiber	Utility	Yes	
Shared	Use of HW Fiber Plant	Yes	
FDOT	FDOT Cost Part of Quote	Yes	
One Provider	Single Point of Contact	Yes	

Commentary

The comparison was done between the quote provided by Hotwire Communications and competitors within the current market.

- **Thermal** – Hotwire provide Thermals to support a more granular coverage to meet the expectation of Golden Beach. We are providing 18 MM Thermal bullets that can identify a human up to 210 meters away or a car 225 meters away.
- **8 MP Multi Lens** – Hotwire 8MP Multi Lens supports 4K video and provide better coverage with native analytics. These cameras are along Ocean and Golden Beach Drive to ensure trackability and greatly improve visibility and security. The other providers may not provide any 8 MP Multi Lens cameras.
- **5 MP Multi Lens** – Hotwire 5MP Multi Lens are deployed in-between our 8MP Multi Lens for better overlay and trackability. Thus, greatly improving visibility, searchability and security.
- **PTZ Camera** – Hotwire used PTZ as a complement to our overall solution. The other provides may decide to used PTZ instead of Thermals. We desired to provide a robust solution that overlay, overlap and provide granular visibility to benefit the security of Golden Beach.
- **Fixed versus Multi Lens** – Hotwire designed a solution to provide Golden Beach with the full 360 view of the city and not single stationary view. Therefore, we have several multi-lens camaras as part of our solution, while others are proposing more fixed cameras with a single view.
- **Storage** – Hotwire is providing storage 24/7 for 180 days with multiple servers.
- **Redundancy** - Hotwire is providing redundant fiber, switches, NVRs and camera channel licenses that protects the data on each server.
- **Analytics** – Hotwire included analytics as part of the proposal while the other providers include it as a separate chargeable item. We believe analytics is a critical part of the overall solution not an add-on.
- **Infrastructure** – Hotwire leverage all its own infrastructure to support Golden Beach. Competitors would need to leverage Hotwire infrastructure in some locations to support their deployments.
- **Civic Center** – Hotwire include coverage for the Civic Center.

Town of Golden Beach

Hotwire Notes and Clarification

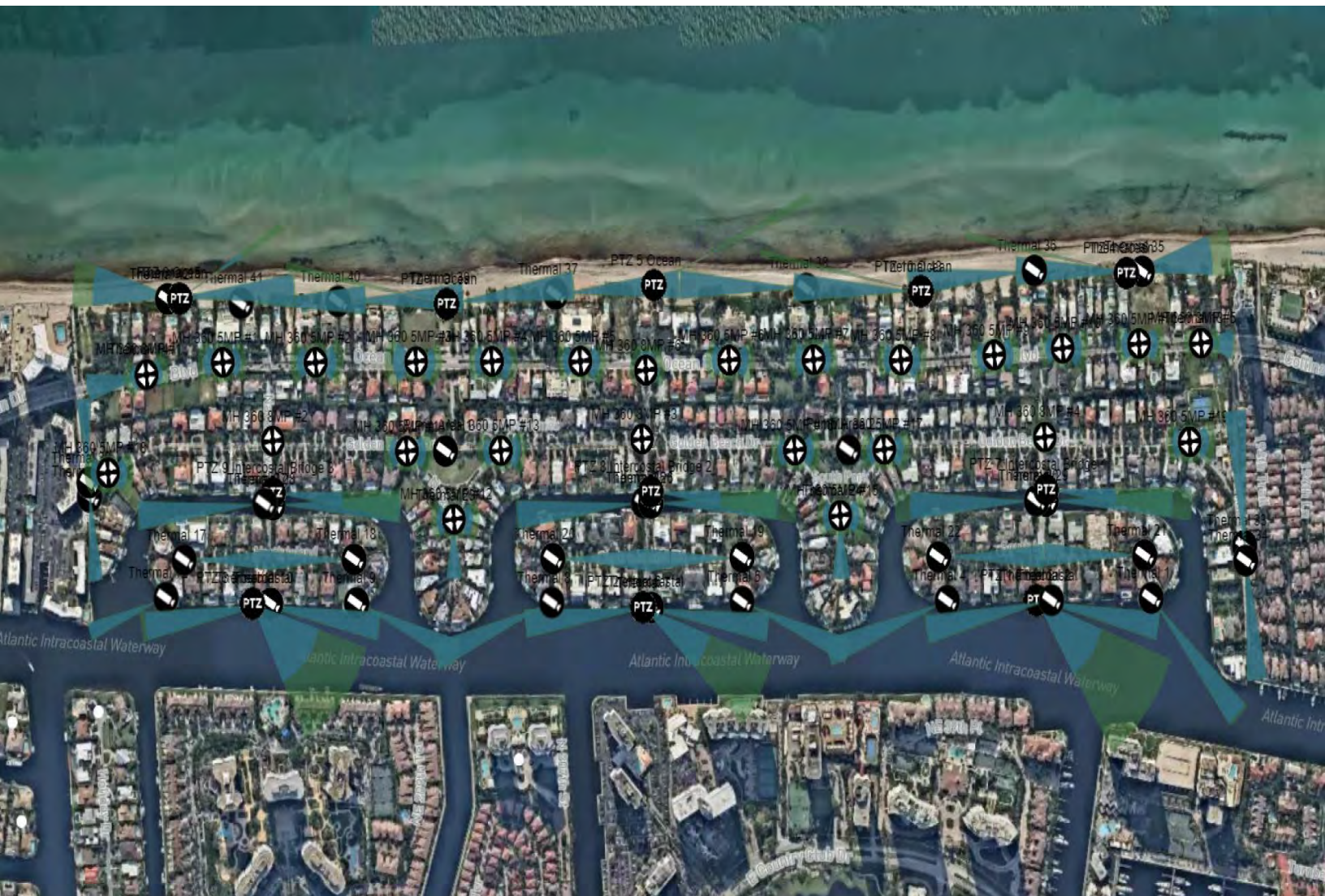
- The Hotwire Security System will be deployed as stand-alone security infrastructure for performance and identification, as well as, the ability to layer additional smart city applications as discussed
 - Analytics included with solution C2, C3 and C4.
 - Additional Infrastructure included with solution C2, C3 and C4
 - Integration into Hotwire Security System and TOGB PD Included
 - Monthly Maintenance of System Not Included

Hotwire Service Rate

- **Rate:** \$40.00 per unit per month (360 Units)
- **Term:** 10 years

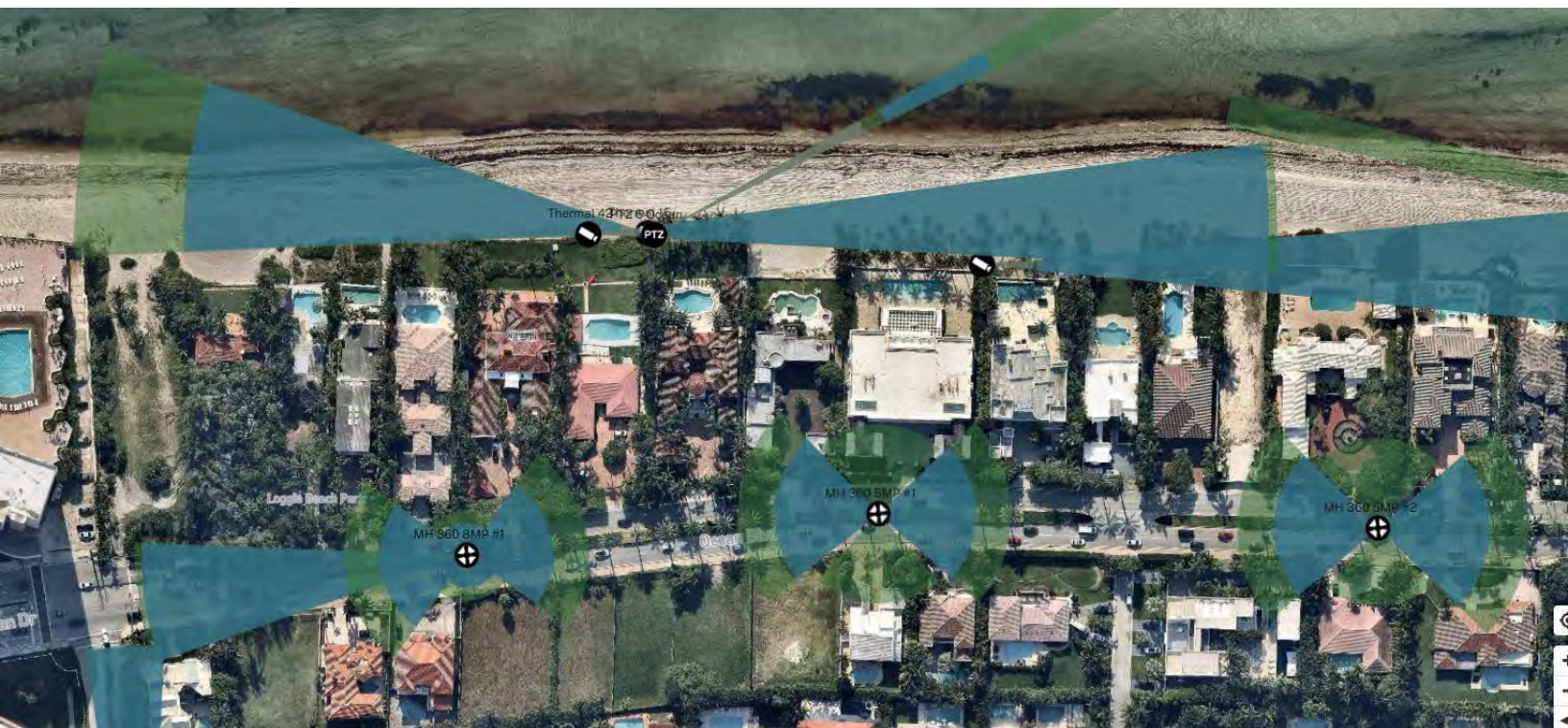
Town of Golden Beach

Security Design by Hotwire Communciations to Follow



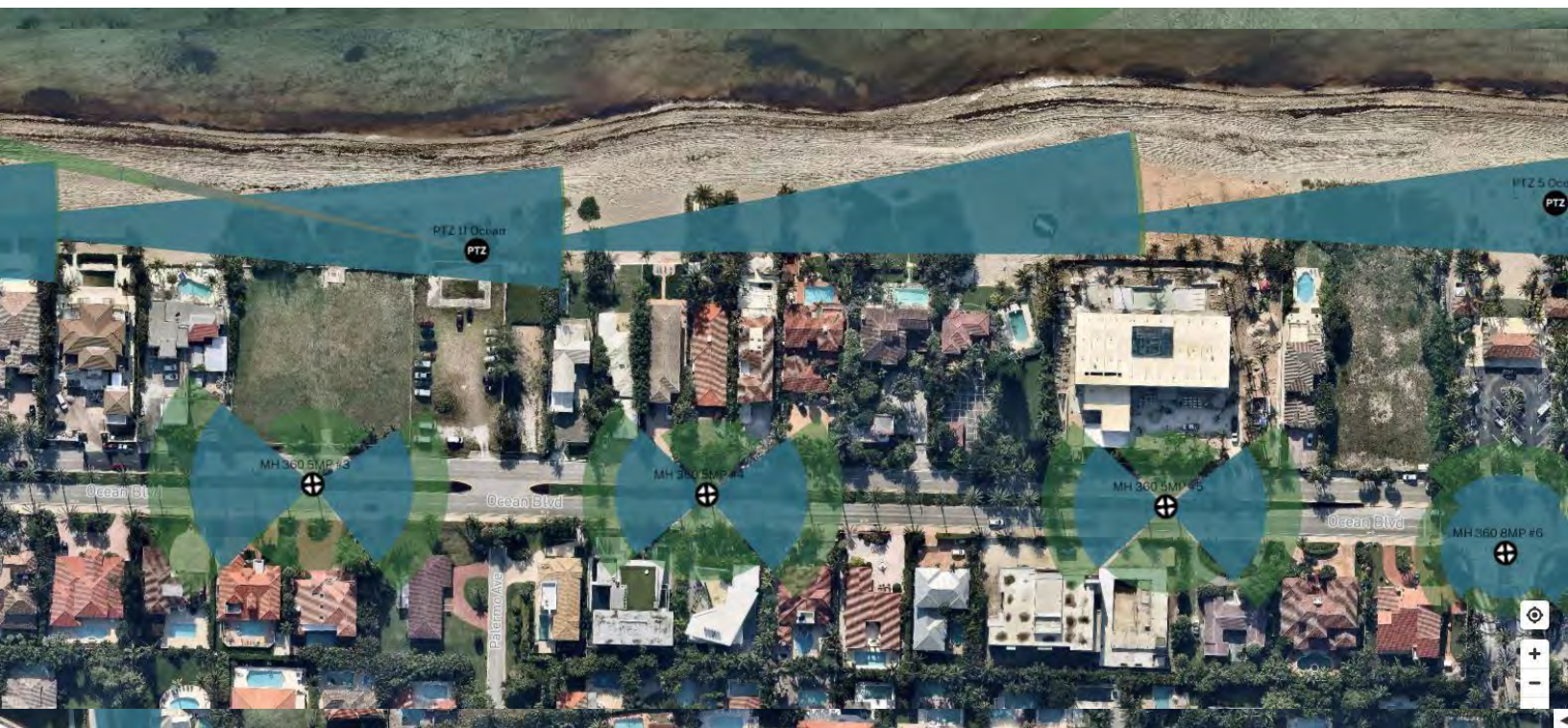
Town of Golden Beach

North Thermal Beach



Town of Golden Beach

Middle Thermal Beach



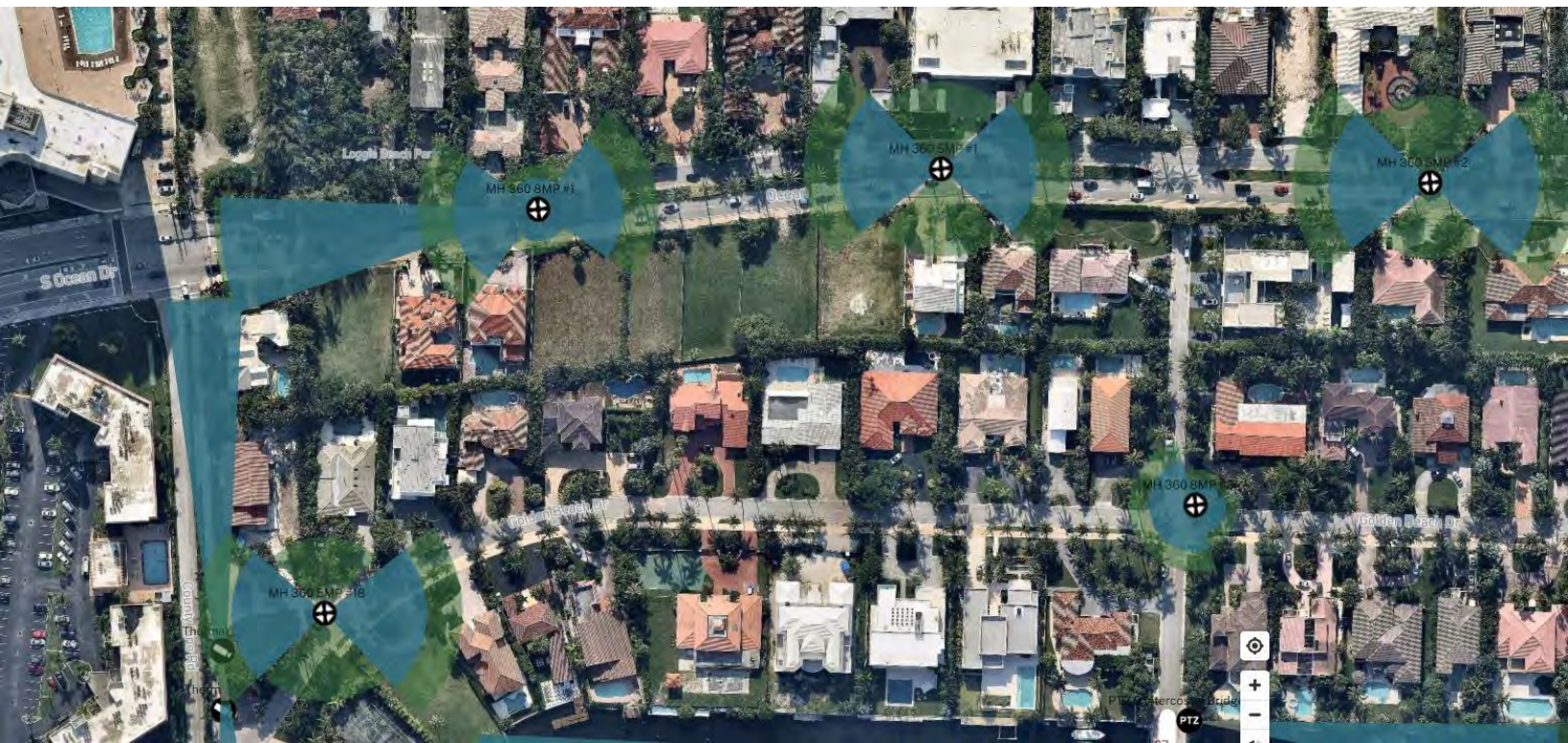
Town of Golden Beach

South Thermal Beach



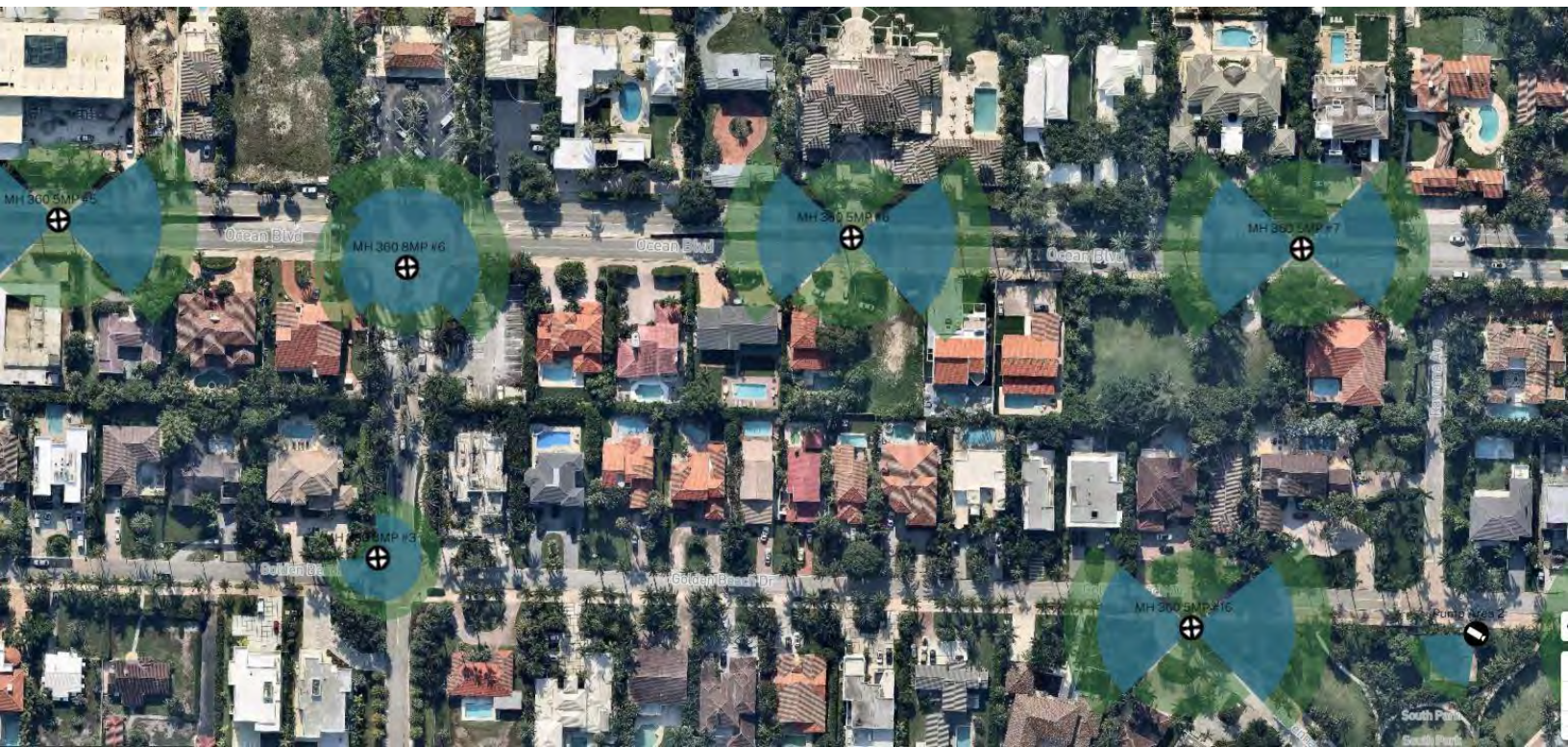
Town of Golden Beach

North Ocean Blvd



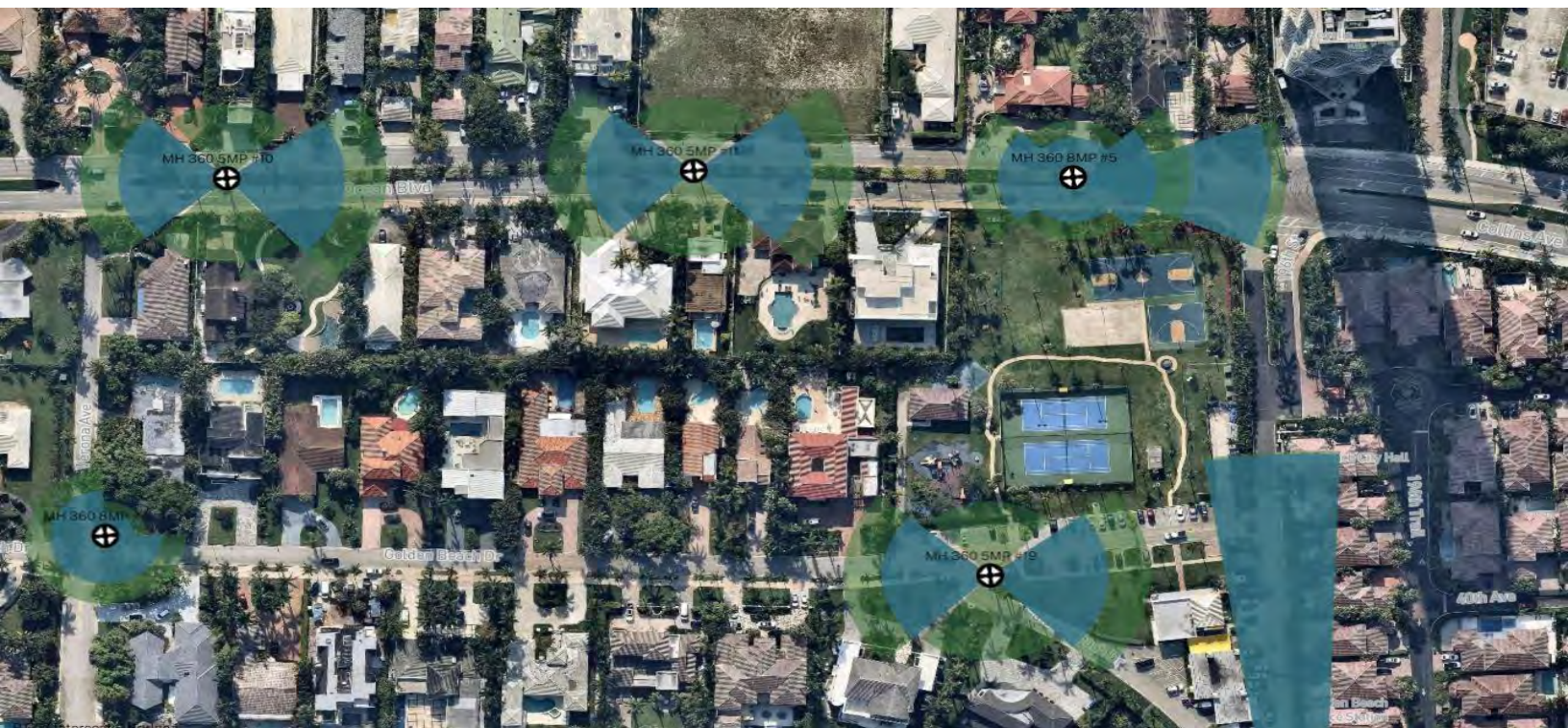
Town of Golden Beach

Middle Ocean Blvd



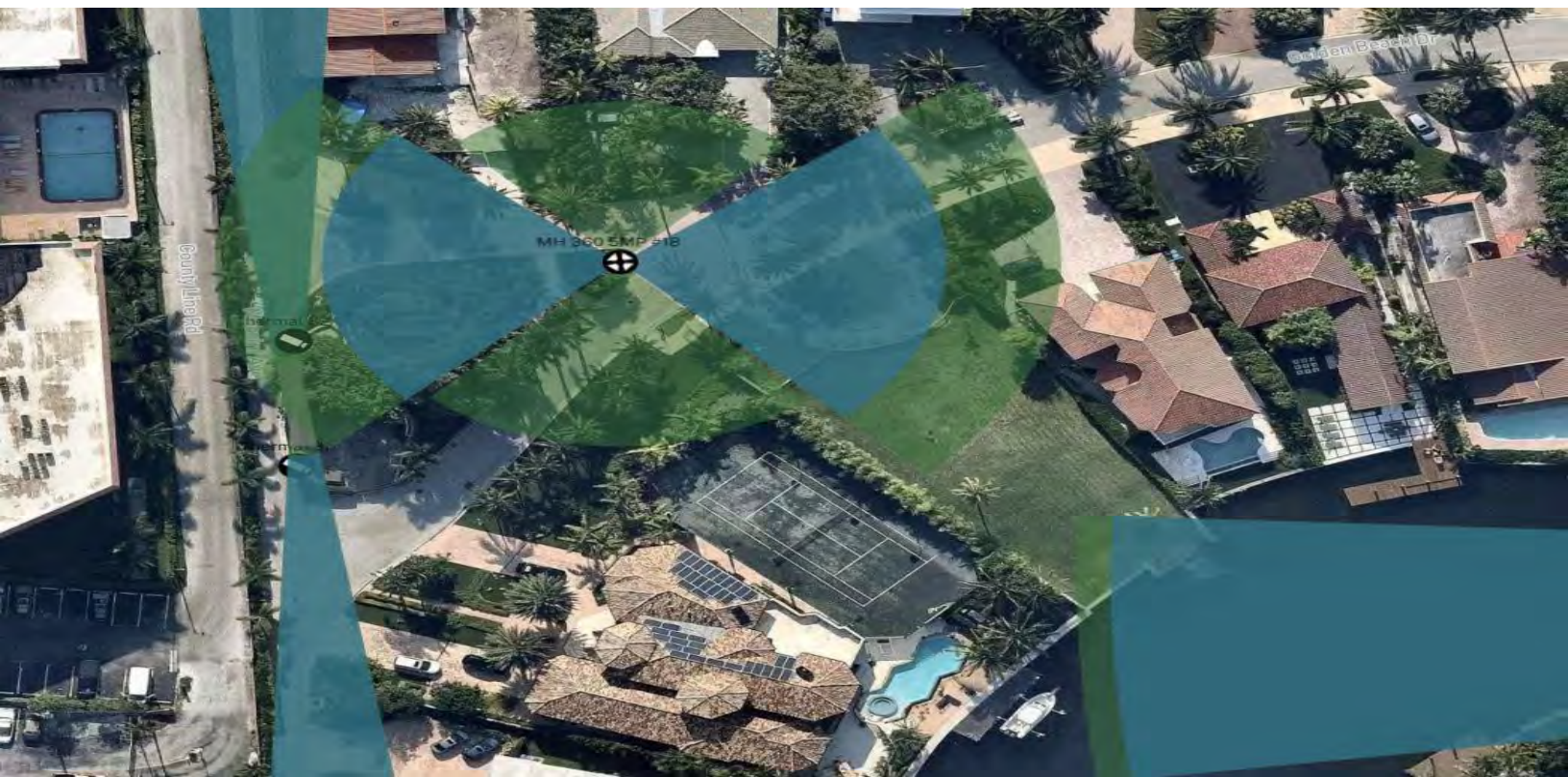
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South Ocean Blvd



Town of Golden Beach

North Perimeter Inside Community



Town of Golden Beach

North Park



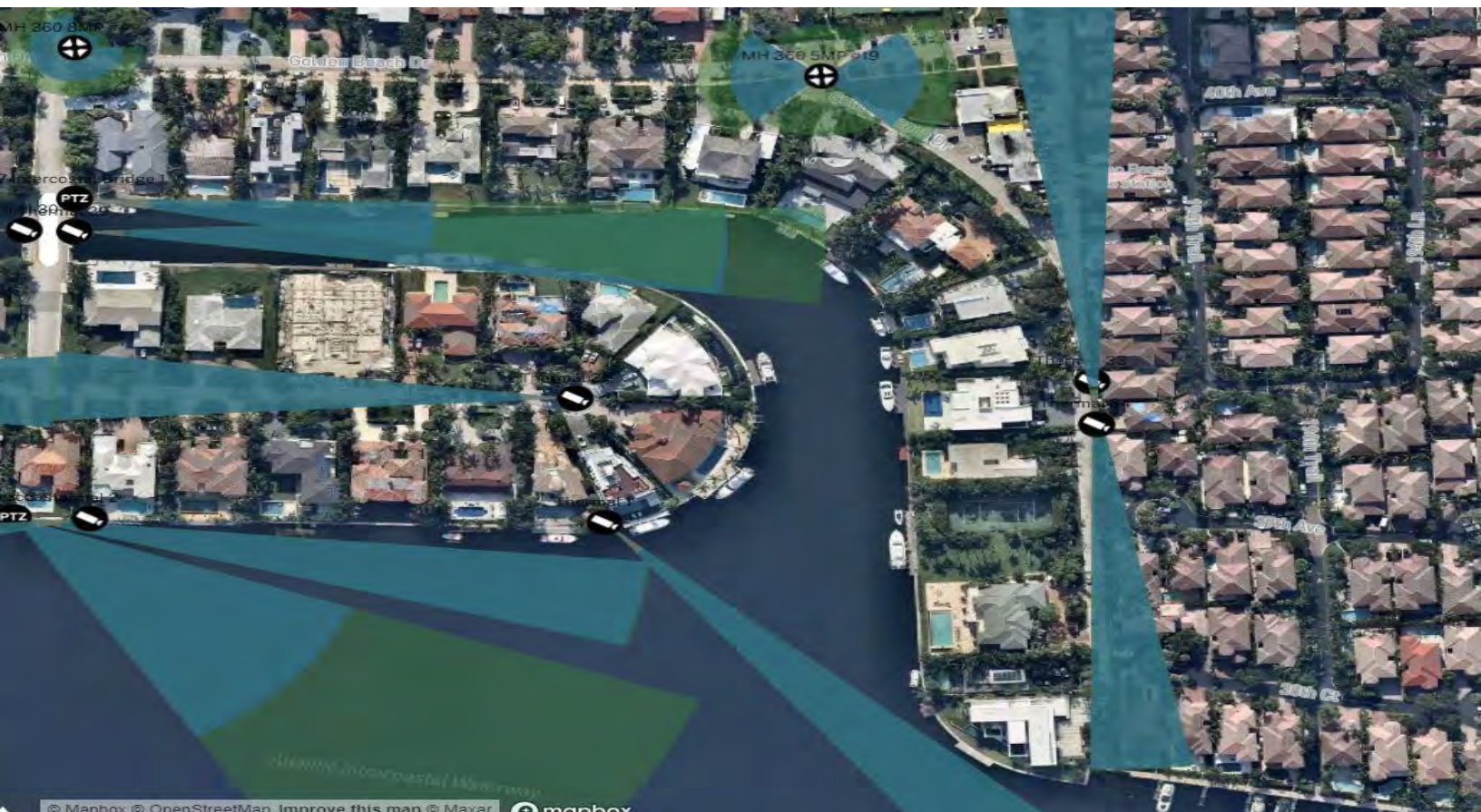
Town of Golden Beach

South Park



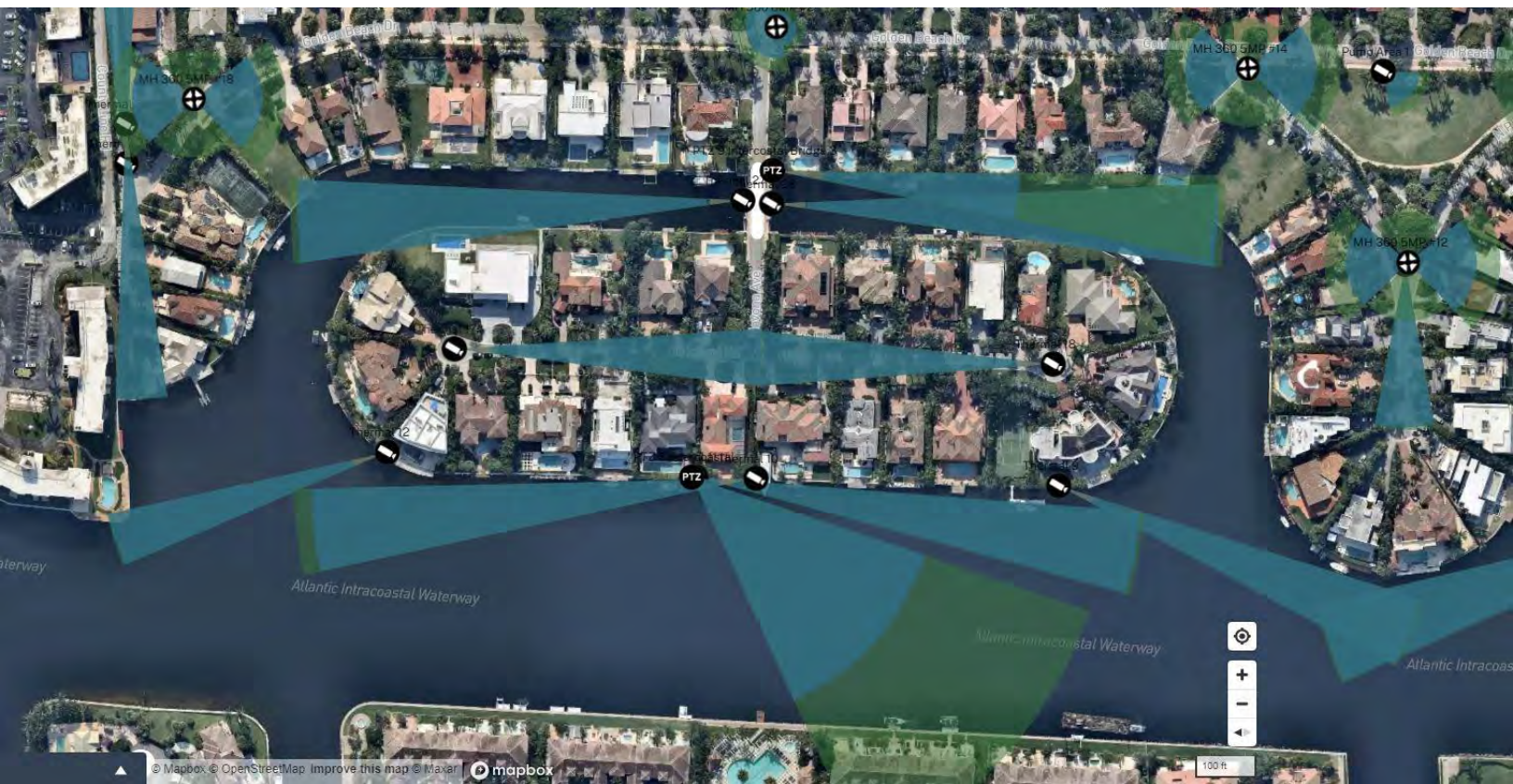
Town of Golden Beach

South Perimeter Inside Community



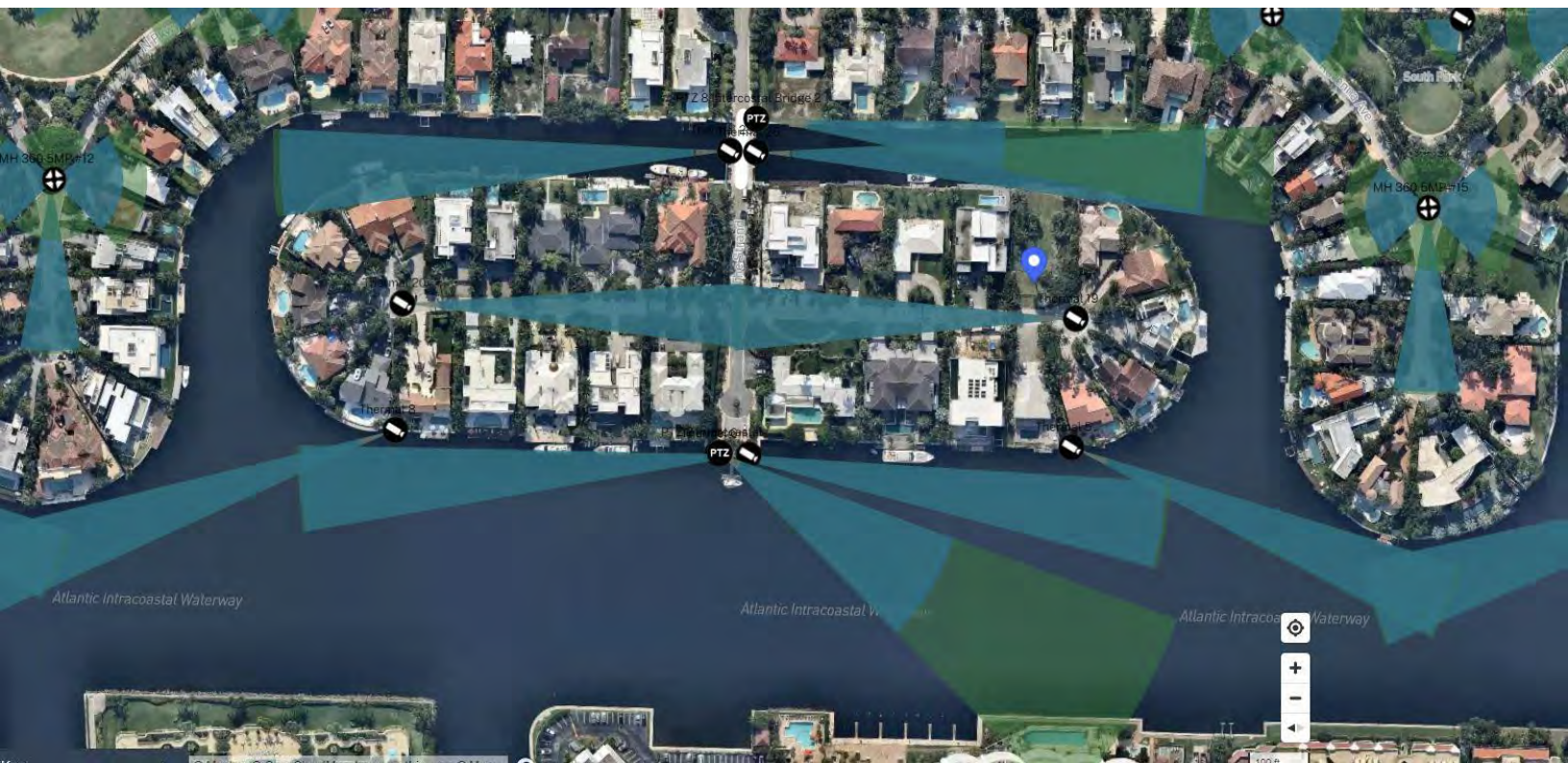
Town of Golden Beach

North Island



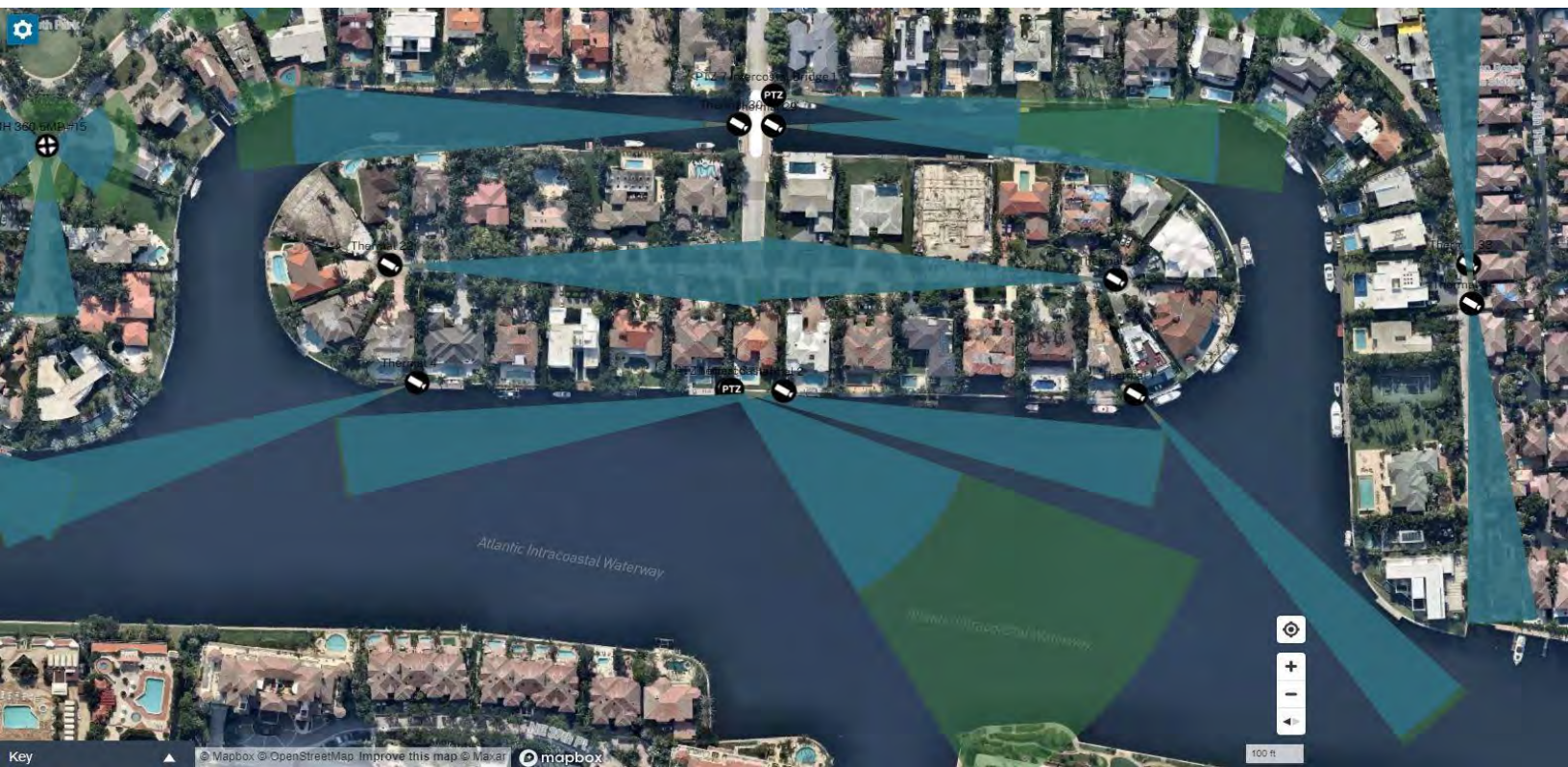
Town of Golden Beach

Middle Island



Town of Golden Beach

South Island



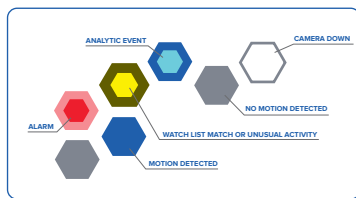


Town of Golden Beach

Product Description to Follow

Avigilon Control Center™ 7 Software

Avigilon Control Center (ACC) software is an easy-to-use video management software that is designed to optimize the way security professionals manage and interact with high-definition video. It efficiently captures and stores HD video, while intelligently managing bandwidth and storage using our patented High Definition Stream Management (HDSM) technology. Version 7 of the software introduces an entirely new way to monitor live video through its Focus of Attention interface, enabling operators to see at a glance what is happening across the entire site and more effectively triage and respond to the most important events.



Focus of Attention Interface

Redefining live video monitoring, Focus of Attention helps increase operator effectiveness by providing an overview of events across all cameras in the site, including Avigilon analytic events, face and license plate watch list matches, Unusual Activity Detection (UAD) events, Unusual Motion Detection (UMD) events, motion events, and alarms. Operators can triage the most important events, reviewing associated video to determine if a response is required.



Facial Recognition Technology

Accelerate response times using AI-powered facial recognition technology to detect people of interest based on secure watch lists managed by authorized users at the organization. Populate watch lists by uploading an image or finding a face from recorded video. Robust controls govern the accessibility and retention of watch list data. Start an Avigilon Appearance Search™ query for watch list entries, or receive alerts for potential watch list matches through the Focus of Attention interface. For added security, create alarms that trigger when any individual on the watch list is detected.



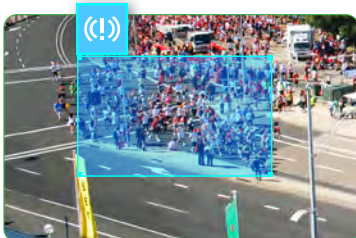
Avigilon Appearance Search Technology

A sophisticated AI search engine that enables investigators to sort through hours of recorded video with ease and quickly locate a person or vehicle of interest across an entire site. Search for a person or vehicle of interest by entering a physical description, by uploading a photo, or by finding an example in recorded video.



Next-Generation Analytics and Self-Learning Video Analytics

ACC™ video management software enables analytic events and alarms to be viewed and searched through an intuitive user interface. Real-time events and forensic capabilities detect and notify operators of scene changes and rules violations.



Unusual Activity and Unusual Motion Detection (UAD & UMD)

Advanced AI technology highlights the unanticipated by automatically flagging unusual activity and motion. Without any configuration, UMD detects atypical movement while UAD is object-aware and detects anomalous behavior (speed and location) of people and vehicles.

UAD H5A UMD H5SL H5M H4A H4SL H4 MINI DOME

Preinstalled on Avigilon Recorders and Appliances

ACC software is pre-installed and configured on Avigilon HD Video Appliances, Network Video Recorders (NVRs), NVR Workstations, ACC ES Recorders, ACC ES Analytics Appliances, ACC ES 8-Port Appliances and the H4ES camera line. You can also install the stand-alone ACC software to meet the needs of a wide variety of projects. Our NVRs come pre-installed with the NVR Analytics Kit to enable our patented Avigilon Appearance Search technology.



Avigilon Control Center Advanced Features



HDSM™ Technology

Intelligently manages HD image communications to optimize network bandwidth and workstation performance for even the highest resolution Avigilon cameras.



HDSM SmartCodec™ Technology Support

Automatically adjusts compression levels for regions in a scene, to optimize bandwidth while still maintaining image quality.



Avigilon Appearance Search Technology

Quickly search recorded video to find instances of a person or vehicle across all sites using cameras with Avigilon self-learning analytics. Search for a person by physical description, including clothing color, hair color, gender and age group. Search for a vehicle by physical description, including color and category - car, truck, bus, bicycle, and motorcycle. Search for a person or vehicle by uploading a photo.



Facial Recognition Technology

AI-powered facial recognition algorithms notify operators when a person of interest returns to a facility. Add a person to a face watch list by uploading a photo or from recorded video. Create watch list alarms, monitor the Focus of Attention interface to detect matches, or start an Appearance Search for a person on a watch list.



Intelligent Search

Powerful search tools enable you to quickly search recorded video for motion, the presence of classified objects (people or vehicles), background changes in the scene (thumbnail search), and for events.



Simple Camera and Server Installation

Plug-and-play capabilities for NVRs and cameras that automatically identify themselves on the network, without manual configuration or searching.



License Plate Recognition (LPR) Analytics

Second generation LPR analytics engine with easy configuration and improved accuracy for faster security response. Multiple license watch lists can trigger unique ACC rules when detecting a match.



ACM-ACC Interoperability

The Access Control Manager (ACM) system receives, processes, and acts on ACM™ door events, hardware input events, and access grants, enabling operators to unlock access doors directly from a camera view. Identity Verification enables users to see ACM system credentials dynamically displayed with ACC camera views. Identity Search enables users to visually verify access events, and initiate an Avigilon Appearance Search across the entire site for the same person.



Avigilon Cloud Services Web Client

Securely stream live and recorded video from firewall-protected ACC sites using a Chrome or Safari web browser. With no client installation required, this solution leverages Avigilon Cloud Services to support secure peer-to-peer connections to ACC servers.



ACC Mobile Software

Push alarm notifications, live and recorded video, two-way audio, self-learning video analytics overlays, digital output triggers, and PTZ control for Android™ and iOS mobile devices. Using Avigilon Cloud Services, log in to connected ACC sites without any complicated firewall configuration.



Video Archive

Retain and manage large amounts of video for on-demand retrieval and review. Extend your storage beyond NVRs using the Avigilon Video Archive for reliable and scalable storage.



Detailed Management, Monitoring, and Reporting of System Status and Security

Detailed logs of storage, network, and overall system status to help ensure the highest possible system uptime for critical applications.



Point-of-Sale Transaction Engine

Link HD security recorded video (viewed instantly) with transaction data to address compliance requirements and help reduce shrinkage and theft.



Scalable Integration with External Systems

Distributed architecture features .NET-based and REST-based APIs that can easily be integrated with other systems, such as access control and building management.



ONVIF® Profile S, T and G Compliant VMS

Ensures interoperability between IP based ONVIF conformant security devices regardless of manufacturer. Allows video and audio recovery from SD cards installed in Profile G cameras in case of network failure.



Unusual Activity Detection

UAD technology enables object-level detection of atypical activity. This edge-based intelligence uses advanced AI technology and is designed to be object-aware, enabling operators to know when a person or vehicle is in an unusual location in the scene or moving at an unusual speed.



Unusual Motion Detection

UMD technology enables fast video search and is designed to reduce hours of work to minutes by narrowing potentially thousands of motion events to a handful. This allows operators to focus their attention on recorded video needing further investigation.



Federal Government Compliance with FIPS 140-2 Certified Encryption

To comply with policies, Federal Government and other customers can enable FIPS 140-2 certified cryptography on ACC software and on supported Avigilon cameras. Required camera cryptography licenses are centrally managed in ACC. Within ACC, optionally turn on licensed FIPS cryptography on Avigilon cameras. ACC inventories the number of FIPS camera licenses being used and determines whether customers have the required number of licenses within a facility.

Specialty Devices



Avigilon Presence Detector Support

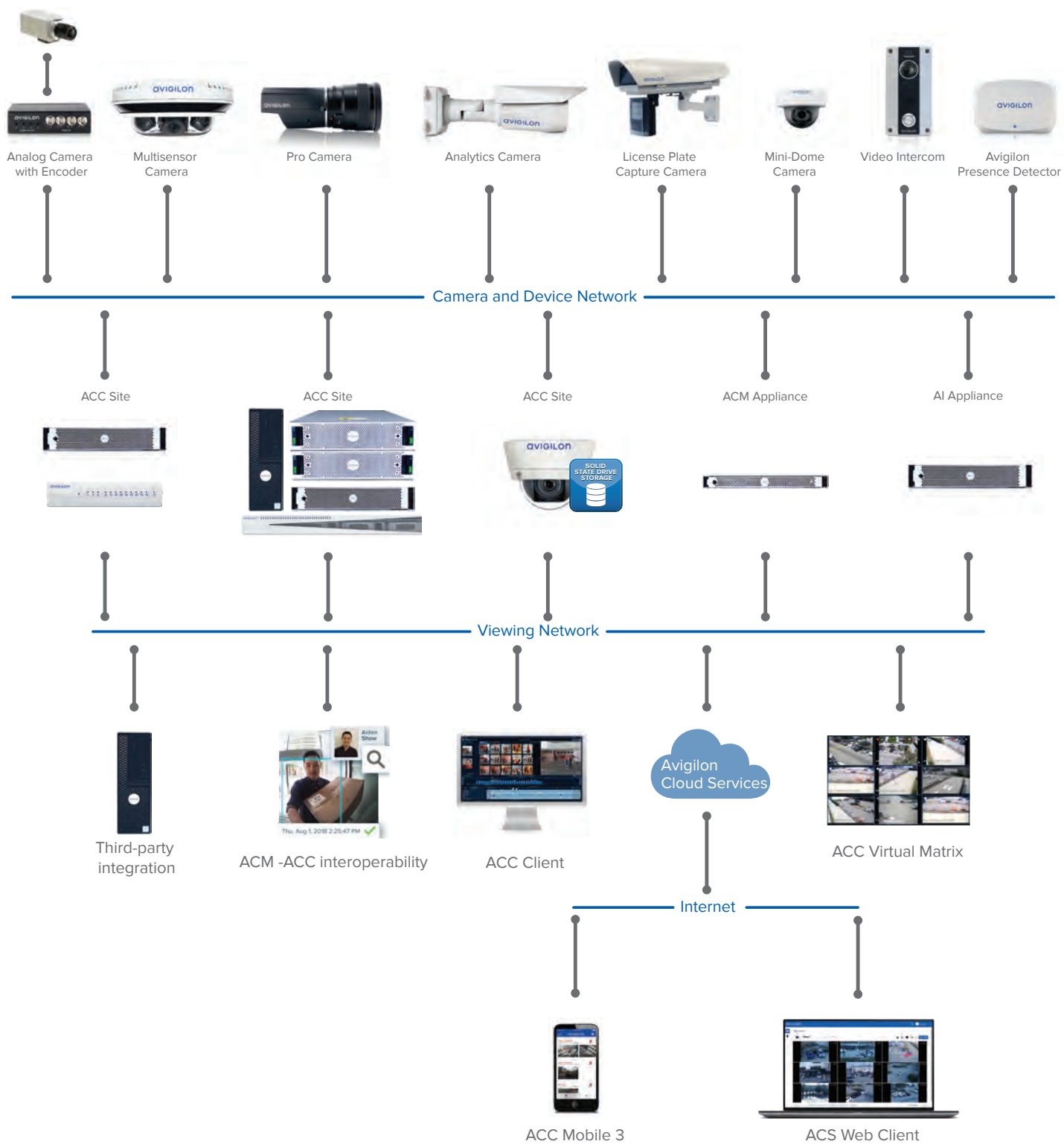
The Avigilon Presence Detector™ sensor is a small form factor impulse radar device with self-learning radar analytics that accurately detects the presence of a person even if they have stopped moving or are hidden. It has the ability to detect presence through blankets, cardboard, wood and drywall.



H4 Video Intercom Support

Video Intercom support provides operators with visual and audio verification of visitors. The H4 Video Intercom integration uses wide dynamic range and echo canceling technologies for clear viewing and two-way communication with visitors.

System Architecture



Software Editions

The Avigilon Control Center software is offered in three editions: Core, Standard and Enterprise. The Core edition is an entry-level version of our award-winning software that delivers advanced high definition video security capabilities, ease of use, and superior image quality to smaller implementations. The Standard edition is a cost-effective security solution that meets the vital and focused needs of mid-size operations. The Enterprise edition includes all of the Core and Standard features, plus advanced features to make it a powerful, open platform for large-scale video security needs.

SYSTEM	CORE	STANDARD	ENTERPRISE
Cameras per server	24	75	300+*
Cameras per site	24	75	10 000+*
Servers per site	1	1	100+*
Client licenses per server	2	10	Unlimited
Maximum bookmarks	10 000	10 000	10 000
Rule triggers	0	51	Unlimited
HDSM technology support	Yes	Yes	Yes
HDSM SmartCodec technology support	Yes	Yes	Yes
Dual Streaming for ONVIF compliant cameras	Yes	Yes	Yes
H.265, H.264, MPEG4, MJPEG, JPEG2000 video compression	Yes	Yes	Yes

* Actual limits will depend on the hardware environment. Please review Avigilon server and appliance datasheets for applicable limits.

DEVICE SUPPORT	CORE	STANDARD	ENTERPRISE
Automatic device discovery	Yes	Yes	Yes
Third-party IP cameras and encoders	Yes	Yes	Yes
ONVIF compliant cameras and encoders	Yes	Yes	Yes
H5A cameras with Next-Generation Video Analytics	Yes	Yes	Yes
H4A cameras with Self-Learning Video Analytics	Yes	Yes	Yes
H5SL, H5M, H4SL, H4 Multisensor, H4 PTZ, H4 IR PTZ, H4 Fisheye, H4 Mini Dome, H4ES, and H4 Thermal cameras	Yes	Yes	Yes
H4 Thermal Elevated Temperature Detection (ETD) cameras	Yes	Yes	Yes
Avigilon H3, HD and earlier cameras	Yes	Yes	Yes
Fisheye dewarping	Yes	Yes	Yes
Avigilon analog video encoder	Yes	Yes	Yes
Avigilon Presence Detector (APD) sensor	No	Yes	Yes
H4 Video Intercom	No	Yes	Yes
H5 Pro and H4 Pro cameras	No	No	Yes
Avigilon AI Appliance	No	No	Yes

CLIENT	CORE	STANDARD	ENTERPRISE
Video Analytics overlays (Next-Generation Video Analytics, Self-Learning Video Analytics, UAD and UMD)	Yes	Yes	Yes
Joystick support	Yes	Yes	Yes
ACC Mobile 3 app / Web Endpoint including mobile alarm notifications	Yes	Yes	Yes
Avigilon Cloud Services Web Client	Yes	Yes	Yes
FIPS 140-2 Encryption	Yes	Yes	Yes
Certificate management between ACC Client and Server	Yes	Yes	Yes
Emergency privilege override	Yes	Yes	Yes
Two-factor authentication	Yes	Yes	Yes
Password strength meter	Yes	Yes	Yes
Light and dark interface themes	Yes	Yes	Yes
Editable Site View	Yes	Yes	Yes
Multi-camera export with optional password protection	Yes	Yes	Yes
Hourly configurable recording schedule	Yes	Yes	Yes
Saved views	No	Yes	Yes
Maps with configurable icons and camera thumbnail previews	No	Yes	Yes
Integrated web page bookmarking and display	No	Yes	Yes
Focus of Attention interface	No	No	Yes
Active Directory integration	No	No	Yes
Intelligent Virtual Matrix	No	No	Yes
Collaborative investigations	No	No	Yes
Multi-camera privacy blurred export from Avigilon Appearance Search results	No	No	Yes

SEARCH	CORE	STANDARD	ENTERPRISE
UAD and UMD timeline filtering with Skip Play	Yes	Yes	Yes
Intelligent motion search	Yes	Yes	Yes
Thumbnail search	Yes	Yes	Yes
Event search	Yes	Yes	Yes
Point-of-sale (POS) transaction search	No	Yes	Yes
Avigilon Appearance Search technology	No	No	Yes
Alarm search	No	No	Yes
License plate event search	No	No	Yes

ACC INTEROPERABILITY WITH ACM SYSTEMS	CORE	STANDARD	ENTERPRISE
Door and panel input event triggers	No	Yes	Yes
Door access grants	No	Yes	Yes
Shared operator access	No	Yes	Yes
ACM Identity Verification	No	Yes	Yes
ACM Identity Search	No	Yes	Yes

ADD-ON MODULES AND INTEGRATIONS	CORE	STANDARD	ENTERPRISE
POS transaction engine	No	Yes	Yes
Avigilon developed and supported integrations	No	Yes*	Yes
Third party system integrations	No	Yes	Yes
License Plate Recognition with multiple match lists	No	No	Yes
Face Recognition with multiple watch lists	No	No	Yes

*CommScope® iPatch®, RS2 Access It!®, DDS Amadeus 5 and DSX only

ADDITIONAL FEATURES	CORE	STANDARD	ENTERPRISE
System and motion event e-mail notifications	Yes	Yes	Yes
Two person authenticated recorded video viewing	Yes	Yes	Yes
Camera replacement	Yes	Yes	Yes
Central station notifications including ANSI/SIA DC-09-2013	No	Yes	Yes
Digital input email trigger	No	Yes	Yes
Manual digital output trigger	No	Yes	Yes
Audio recording and output	No	Yes	Yes
APD™ event trigger	No	Yes	Yes
Next-Generation Video Analytics and Self-Learning Video Analytics event configuration	No	Yes	Yes
Camera standby / privacy mode	No	Yes	Yes
Avigilon AI Appliance analytics configuration	No	No	Yes
Redundant recording	No	No	Yes
Failover connections	No	No	Yes
ACC Client alarm notifications and escalation	No	No	Yes
One-time Video Archive	No	Yes	Yes
Tiered Storage Management with Continuous Archive	No	No	Yes

For the latest list of integrations and add-ons supported by Avigilon Control Center software, visit avigilon.com.

System Requirements

Note:

- Run Windows Update before launching Avigilon Control Center (ACC) software.
- NVR recording throughput and retention times can vary according to the number of cameras, camera resolution, estimated percent of motion, continuous recording settings and predefined retention period.
- For best-in-class performance, choose an **Avigilon Certified Solution**.

ACC Client Software

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
2 Monitor Professional High Performance Remote Monitoring Workstation	RM6-WKS-2MN	<ul style="list-style-type: none">• Preactivated with ACC Client software.• Supports high resolution monitors.• Includes the adapters and accessories for quick deployment.• Avigilon warranty and support included.
4 Monitor Professional High Performance Remote Monitoring Workstation	RM6-WKS-4MN	

SYSTEM REQUIREMENTS	MINIMUM	RECOMMENDED
Operating System	Windows 8.1 (64-bit) or Windows 10 (64-bit) Microsoft .NET 4.6.2	Windows 10 (64-bit) Microsoft .NET 4.6.2
Processor	Intel® dual-core CPU (2.0 GHz) Streaming SIMD Extensions 2 (SSE2)	8th Generation Intel Celeron® CPU or higher
System RAM	4 GB DDR3	8 GB DDR4
Video Card	PCI Express, DirectX 10.0 compliant with 256 MB RAM	NVIDIA® Quadro P620
Network Interface	1 Gbps	1 Gbps
Hard Disk Space	500 GB	500 GB

ACC Server Software

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
NVR Premium	NVR4X-PRM-64TB / 96TB / 128TB / 157TB / 192TB / 217TB	<ul style="list-style-type: none">• Optimized for video security applications in a 24/7/365 environment• ACC Server software is preinstalled, configured and enhanced for optimal system compatibility• Certified for the Avigilon video security environment - ACC software, LPR, Web Endpoint, Analytics, HDSM and 1-30MP cameras• High throughputs of up to 1800 Mbps• Documented network architecture for a wide variety of applications• Avigilon warranty and support included• Access to Avigilon System Design Tool (SDT) to calculate storage requirements
NVR Standard	NVR4X-STD-16TB-S16 / 16TB / 24TB-S16 / 24TB / 32TB-S16 / 32TB / 48TB-S16 / 48TB	
NVR Value	NVR4-VAL-6TB / 12TB / 18TB / 24TB	
AI NVR	AINVR-PRM-PLUS-64TB / 96 TB / 128 TB / 160 TB AINVR-PRM-64TB / 96 TB / 128 TB / 160 TB AINVR-STD-24TB / 32 TB / 48TB AINVR-VAL-6TB / 12TB	

SYSTEM REQUIREMENTS	MINIMUM	RECOMMENDED
Operating System	Windows Server 2012 R2, Windows 8.1 (64-bit) or Windows 10 (64-bit), Windows Server 2016, Windows Server 2019	Windows Server 2016 or Windows 10
Processor	x86 64 bit dual-core (1.9 GHz) SSE2	Intel® Xeon® E5 v3 (6 cores, 1.9GHz)
System RAM	4 GB DDR3	16 GB DDR4
Network Interface	1 Gbps	4 x 1 Gbps
Hard Drives	SATA-II 7200 RPM Enterprise Class Hard Drives	SATA-III 7200 RPM Enterprise Class Hard Drives

ACC Server Workstation

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
HD Video Appliance	VMA-AS3-8P2 / VMA-AS3-8P4 / VMA-AS3-8P8 / VMA-AS3-16P06 VMA-AS3-16P09 / VMA-AS3-16P12 / VMA-AS3-24P12 VMA-AS3-24P18 / VMA-AS3-24P24	<ul style="list-style-type: none"> • Preloaded and configured with ACC software • High-performance recording capacity • Throughputs of up to 400 Mbps • Avigilon warranty and support included • Access to Avigilon System Design Tool (SDT) to calculate storage requirements
ACC ES HD Recorder	VMA-RPO-4P2 / VMA-RPO-4P4	
ACC ES Analytics Appliance	VMA-RPA-4P2 / VMA-RPA-4P4	
ACC ES 8-Port Appliance	VMA-ENVR1-8P4 / VMA-ENVR1-8P8	
NVR4X Workstation	NVR4X-WKS-4TB / NVR4X-WKS-8TB	

SYSTEM REQUIREMENTS	MINIMUM	RECOMMENDED
Operating System	Windows 8.1 (64-bit) or Windows 10 (64-bit)	Windows 10 (64-bit)
Processor	Intel Quad-core CPU (2.0 GHz) SSE2	8th Generation Intel Celeron CPU or higher
System RAM	4 GB DDR3	8 GB DDR4
Network Interface	1 Gbps	1 Gbps
Video Card	PCI Express, DirectX 10.0 compliant with 256 MB RAM	NVIDIA Quadro P620
Hard Drives	SATA-II 7200 RPM Hard Drives	SATA-III 7200 RPM Hard Drives

Avigilon Appearance Search Technology and Face Recognition

Avigilon Appearance Search technology and Face Recognition require the ACC Analytics Service to be installed on the same computer as the ACC Server software and must meet the listed system requirements:

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
AI NVR	AINVR-PRM-PLUS-64TB / 96TB / 128TB / 160 TB AINVR-PRM-64TB / 96TB / 128TB / 160TB AINVR-STD-24TB / 32 TB / 48TB AINVR-VAL-6TB / 12TB	Security-hardened NVR that provides server-side analytics for connected third-party and non-analytic cameras.
Analytics Kit for Avigilon Appearance Search Software	HD-NVR-ANK2-1	Tested and verified to provide enough processing power to run Avigilon Appearance Search feature.

SOFTWARE SYSTEM REQUIREMENTS	APPEARANCE SEARCH ONLY	APPEARANCE SEARCH AND FACE RECOGNITION
NVIDIA GPU Requirements	<ul style="list-style-type: none"> • 4 GB RAM • NVIDIA Turing™, NVIDIA Pascal™ or NVIDIA Maxwell™ architecture • CUDA compute capability 7.5, 6.1 or 5.2 • Windows x86_64 Driver Version 451.48 or above (462.31 if Turing) 	<ul style="list-style-type: none"> • 4 GB RAM • NVIDIA Turing™ architecture, NVIDIA T1000 video card, NVIDIA Pascal™ architecture or NVIDIA Quadro P1000 video card • CUDA compute capability 7.5 or 6.1 • Windows x86_64 Driver Version 451.48 or above (462.31 if Turing)

ACC Mobile 3 Software

ACC Mobile version 3 is available for the listed device platforms and requires the ACC Web Endpoint service. The ACC Web Endpoint service comes pre-installed on the AI NVR, ACC ES HD Recorder, ACC ES Analytics Appliance and ACC ES 8-Port Appliance. For NVR systems and HD Video Appliances, it should be installed on the same server as the ACC Server software.

	ANDROID	IOS
Platforms	Android version 6.0 or later	iPad with iOS 11 or later iPhone with iOS 11 or later iPod touch with iOS 11 or later
Processor	n/a	64-bit (Apple A7 or later)

Some images of the product interface have been simulated for illustrative purposes.

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Jan 2022 — Rev 10



AVIGILON VIDEO ARCHIVE

The Avigilon Video Archive is a robust video storage expansion solution for security teams to cost-effectively retain petabytes (PB) of video and comply with video retention policies and industry regulations.

Fully integrated with Avigilon Control Center (ACC) video management software and Network Video Recorders (NVRs), the Avigilon Video Archive simplifies the design, set-up and management of video storage.

It meets the highest standards of resiliency and availability with near zero downtime to ensure video archives can be retrieved at any time.

1.5 PB

1.3 PB

1 PB

751 TB

488 TB

225 TB



COST-EFFECTIVE & SCALABLE STORAGE TAILORED TO YOUR RETENTION POLICY

The Avigilon Video Archive is built to meet the high-capacity storage needs of modern security teams and their IT counterparts by delivering on ease-of-deployment, reliability, security and compliance. For example, a 1.5 PB video archive can extend the retention period by up to 365 days for 50 cameras.*

*Based on 8 Mbps bandwidth per camera (i.e. 4 MP resolution, 24/7 recording, 15 frames per second)



FEATURES & BENEFITS



PAY-AS-YOU-GROW MODEL

Offers a scalable path to grow video archives over time, with units as small as 225 terabytes (TB) and the option to expand up to 1.5 PB using disk packs and expansion chassis.



EASY SET-UP & MANAGEMENT

Streamlines the design, deployment and maintenance process so that security teams can deploy petabytes of storage in a new or existing system and manage the system with no additional training.



SAN TECHNOLOGY

Employs cost-effective SAN technology to store petabytes of video so that security teams do not have to worry about running out of storage space.



"KEEP YOUR DRIVE" WARRANTY

Ensures critical video data never leaves the premises as all repairs and replacements are completed on-site and security teams retain ownership over all data, including the drive that failed.



ERASURE CODING TECHNOLOGY

Prevents data loss, maximizes uptime and eliminates any single point failure with a fully redundant architecture that outperforms JBOD and RAID systems to meet the highest standards of availability.



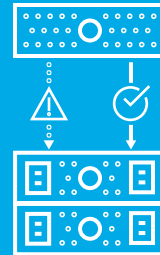
ACC™ SOFTWARE INTEGRATION

Simplifies the management of multiple petabytes of video, including the ability to monitor system health in the ACC dashboard or through Avigilon Cloud Services.



FIVE-YEAR ON-SITE SUPPORT

Support is readily available should repairs or replacements on the Avigilon Video Archive be needed, backed by a five-year guarantee of on-site assistance within one business day.



AVIGILON NVR INTEGRATION WITH FAILOVER & LOAD BALANCING

Expands the storage of NVRs seamlessly for long-term data lifecycle management and protection. Supports MultiPath Input Output (MPIO) to eliminate single point of failure while load balancing across redundant NVR connections.

For more information visit [avigilon.com/ava](https://www.avigilon.com/ava)



MOTOROLA SOLUTIONS

AVIGILON™

H4 MULTISENSOR CAMERA LINE

9 MP

12 MP

15 MP

20 MP

24 MP

32 MP

Provides exceptional scene coverage and high image detail with 3 or 4 individually configurable camera sensors that can be positioned to monitor virtually any area. Delivers broad scene coverage with high image detail up to 32 MP total resolution and uses H.265 compression technology to significantly reduce bandwidth and storage requirements. With self-learning video analytics on board, the H4 Multisensor camera can detect and differentiate people and vehicles from regular motion, and notify operators of potentially critical events that may need further investigation. Featuring wide dynamic range, Avigilon LightCatcher™ technology and the option to add content adaptive IR to outdoor models, the H4 Multisensor camera can provide exceptional image quality in challenging lighting conditions.



FEATURES



SELF-LEARNING VIDEO ANALYTICS

Exceptional efficiency when monitoring and reviewing video with excellent coverage from a single camera.



LIGHTCATCHER™ TECHNOLOGY

Offers excellent image detail in low-light settings.



ONVIF® COMPLIANT

Native ONVIF® Profile S, T and G compliance allows easy integration with existing ONVIF infrastructures.



H.265 & HDSM SMARTCODEC™ TECHNOLOGY

Combines compression technologies to maximize bandwidth and storage.



CONTENT ADAPTIVE IR

Adjusts IR beam width and illumination settings based on scene conditions to help maximize image quality.



WIDE DYNAMIC RANGE

Captures details in scenes with both very bright and very dark areas.

ONVIF is a trademark of Onvif, Inc.



SPECIFICATIONS

IMAGE PERFORMANCE	3.0 MP	5.0 MP	4K (8.0 MP)
Image Sensor	1/2.8" progressive scan CMOS		1/2.5" progressive scan CMOS
Active Pixels	2048 (H) x 1536 (V)	2592 x 1944	3840 x 2160
3 x Image Sensor, Max Resolution (per image sensor)	6144 (H) x 1536 (V)	7776 x 1944	11520 x 2160
4 x Image Sensor, Max Resolution (per image sensor)	8192 (H) x 1536 (V)	10368 x 1944	15360 x 2160
Aspect Ratio	4:3	4:3	16:9
IR Illumination - Optional (high power 850 nm LEDs)	30 m (98 ft) maximum distance at 0 lux when camera is mounted at 4 m (13 ft) off the ground		
Minimum Illumination	2.8 mm: 0.025 lux (F1.2) in color mode 0.005 lux (F1.2) in mono mode 0 lux with optional IR illuminator 4 mm: 0.05 lux (F1.6) in color mode 0.010 lux (F1.6) in mono mode 0 lux with optional IR illuminator		0.02 lux (F1.8) in color mode 0.04 lux (F1.8) in mono mode 0 lux with optional IR illuminator
Dynamic Range	100 dB, true WDR, dual exposure		
3D Noise Reduction Filter	Yes		
Image Rate-Analytics Enabled on All Sensors:			
3 x Image Sensor (60 Hz, 50 Hz)	24 / 25 fps	15 / 17 fps	12 / 13 fps
4 x Image Sensor (60 Hz, 50 Hz)	20 / 20 fps	13 / 13 fps	8 / 8 fps
Image Rate-High Framerate Mode:			
3 x Image Sensor (60 Hz, 50 Hz)	30 / 25 fps	20 / 20 fps	15 / 14 fps
4 x Image Sensor (60 Hz, 50 Hz)	20 / 20 fps	15 / 14 fps	10 / 10 fps
IMAGE CONTROL			
Image Compression Method	H.264 HDSM SmartCodec, H.265 HDSM SmartCodec, Motion JPEG		
Streaming	Multi-stream H.264, Multi-stream H.265, Motion JPEG		
Motion Detection	Selectable sensitivity and threshold		
Electronic Shutter Control	Automatic, Manual (1/8 to 1/8000 sec)		
Iris Control	Fixed		
Day/Night Control	Automatic, Manual		
Flicker Control	60 Hz, 50 Hz		
White Balance	Automatic, Manual		
Backlight Compensation	Adjustable		
Privacy Zones	Up to 64 zones		
Audio Compression Method	G.711 PCM 8 kHz		
Audio Input/Output	Line level input and output		
External I/O Terminals	Alarm In, Alarm Out		
LENS (PER IMAGE SENSOR)	3.0 MP	5.0 MP	4K (8.0 MP)
Lens and Horizontal Field of View	2.8 mm F1.2 - 103 ° 4 mm F1.6 - 72 ° Remote Focus	2.8 mm F1.2 - 103 ° 4 mm F1.6 - 72 ° Remote Focus	4 mm F1.8 - 101 ° 5.2 mm F1.8 - 70 ° Remote Focus

NETWORK	
Network	Gigabit Ethernet, 100BASE-TX, 1000BASE-TX
Cabling Type	CAT5E
Connector	RJ-45
API	ONVIF® compliance Profile S, T, and G (www.onvif.org)
Security	Password protection, HTTPS encryption, digest authentication, WS authentication, user access log, 802.1x port based authentication
Protocol	IPv4, IPv6, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTP, TCP, UDP, IGMPv2, ICMP, DHCP, Zeroconf, ARP, HSTS
Streaming Protocols	RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP
Device Management Protocols	SNMP v2c, SNMP v3

PERIPHERALS	
USB Port	USB 2.0
Onboard Storage	MicroSD/microSDHC/microSDXC slot - video speed class card required. Class V10 or better recommended.

ELECTRICAL	IN-CEILING	SURFACE MOUNT	PENDANT MOUNT
Power Consumption	26 W with 24 VDC 37 VA with 24 VAC PoE+	With IR: 52 W with 24 VDC 74 VA with 24 VAC PoE++ or 60 W PoE* Without IR: 26 W with 24 VDC 37 VA with 24 VAC PoE+	With IR: 52 W with 24 VDC 74 VA with 24 VAC PoE++ or 60 W PoE* Without IR: 26 W with 24 VDC 37 VA with 24 VAC PoE+
External Power	24 VDC \pm 10 %; 24 VAC rms \pm 10 %, 50 or 60 Hz		
PoE*	25.5 W PoE+, IEEE 802.3at Type 2 PoE Plus	With IR: High Power 51 W PoE++* Without IR: 25.5 W PoE+, IEEE, 802.3at Type 2 PoE Plus	

MECHANICAL	IN-CEILING	SURFACE MOUNT	PENDANT MOUNT
Dimension	299 mm x 163 mm (11.77" x 6.42"), below mounting surface: 299 mm x 76 mm (11.77" x 2.99")	299 mm x 115 mm (11.77" x 4.53")	With wall arm: 385 mm x 262 mm x 299 mm (15.15" x 10.30" x 11.77") With NPT adapter: 299 mm x 248 mm (11.77" x 9.76")
Weight	5.2 kg (11.5 lbs)	With IR: 7 kg (15.4 lbs) Without IR: 5.8 kg (12.8 kg)	With wall arm and IR: 8.4 kg (18.5 lbs) With wall arm only: 7.3 kg (16.1 lbs) With NPTA adapter and IR: 7.8 kg (17.2 lbs) With NPTA adapter only : 6.7 kg (14.8 lbs)
Body	Aluminum, Plastic dome trim	Aluminum	Aluminum
Finish	Plastic, Injection Molded, Close to RAL9002	Cast, Powder Coated, Close to RAL9002	Cast, Powder Coated, Close to RAL9002
Environmental	Not applicable	IK10 Impact Rating and IP66 Weather Rating	
Optional IR Illuminator Ring	Not available	Optional accessory, 30 m (98 ft) IR range	

ENVIRONMENTAL	IN-CEILING	SURFACE MOUNT	PENDANT MOUNT	
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)	-40 °C to +60 °C (-40 °F to 140 °F)		
Storage Temperature	-10 °C to +70 °C (14 °F to 158 °F)			
Humidity	0 - 95% non-condensing			

PER SENSOR	
Tilt	+7° to 96° from horizon

PER SENSOR	
Pan	+/-120° (depending on position of image sensors)
Azimuth	+/-180°

*High power PoE may not be compatible with all switches or injectors. High power PoE is compatible with Cisco® UPoE, up to 60 W over 4 pairs, or with the high PoE products listed in the **Accessories** section. Contact Avigilon sales or Avigilon technical support for more information.

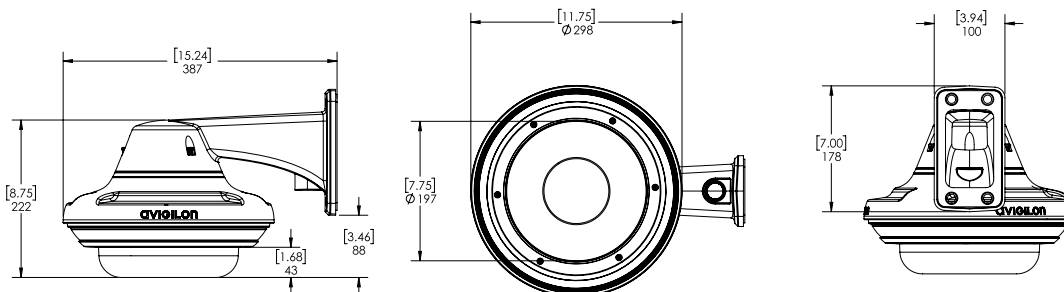
CERTIFICATIONS	IN-CEILING	SURFACE MOUNT	PENDANT MOUNT
Certifications/Directives	UL, cUL, CE, ROHS, WEEE, RCM, EAC, BIS, KC, UKCA, NOM		
Safety	UL 62368-1, CSA 62368-1, IEC/EN 62368-1		
Environmental	UL 2043 Plenum	UL/CSA/IEC 60950-22 IEC 60529 IP66 Rating IK10 Impact Rating IEC 60068 2-6 IEC 60068 2-27 Vibration and Shock	
Electromagnetic Emissions	FCC Part 15 Subpart B Class B, IC ICES-003 Class B, EN 55032 Class B, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3		
Electromagnetic Immunity	EN 55024, EN 61000-6-1, EN 50121-4 (when used with CM-AC-FERR1 on aux power)		
Directives	RoHS, Reach (SVHC), WEEE		

SUPPORTED RULE BASED VIDEO ANALYTIC EVENTS	
Objects in Area	The event is triggered when the selected object type moves into the region of interest.
Object Loitering	The event is triggered when the selected object type stays within the region of interest for an extended amount of time.
Objects Crossing Beam	The event is triggered when the specified number of objects have crossed the directional beam that is configured over the camera's field of view. The beam can be unidirectional or bidirectional.
Object Appears or Enters Area	The event is triggered by each object that enters the region of interest. This event can be used to count objects.
Object Not Present in Area	The event is triggered when no objects are present in the region of interest.
Objects Enter Area	The event is triggered when the specified number of objects have entered the region of interest.
Objects Leave Area	The event is triggered when the specified number of objects have left the region of interest.
Object Stops in Area	The event is triggered when an object in a region of interest stops moving for the specified threshold time.
Direction Violated	The event is triggered when an object moves in the prohibited direction of travel.
Tamper Detection	The event is triggered when the scene unexpectedly changes.

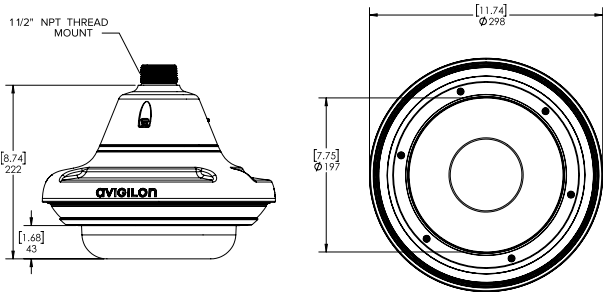
OUTLINE DIMENSIONS

PENDANT WALL MOUNT

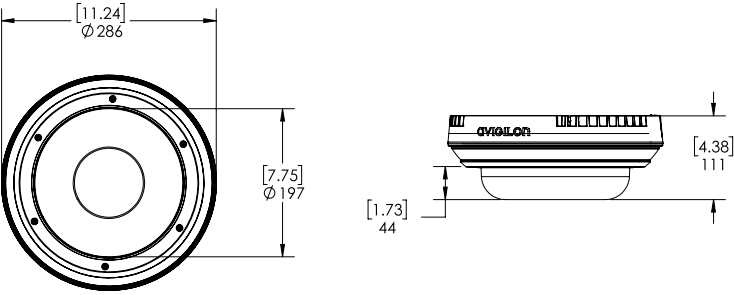
[X.X]	INCHES
X	MM



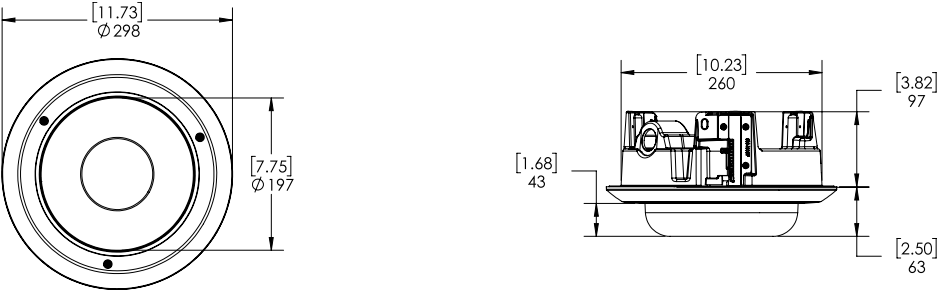
PENDANT NTP MOUNT



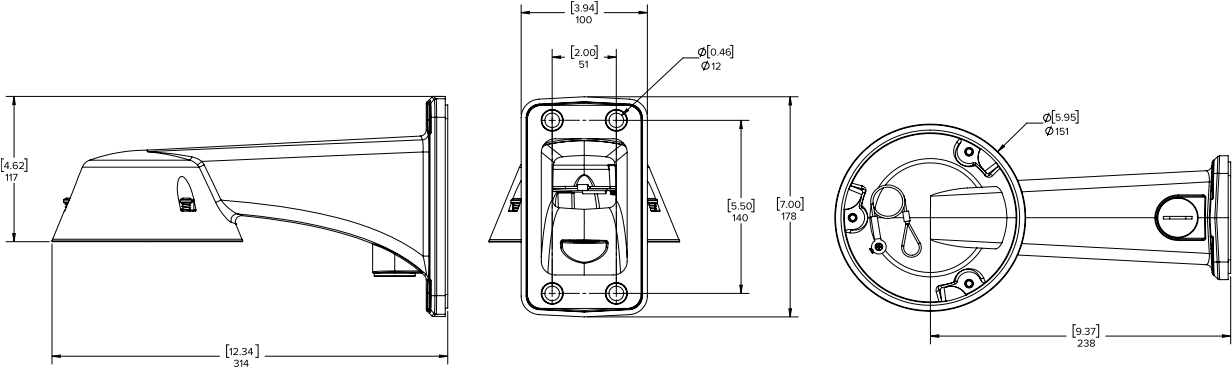
SURFACE MOUNT



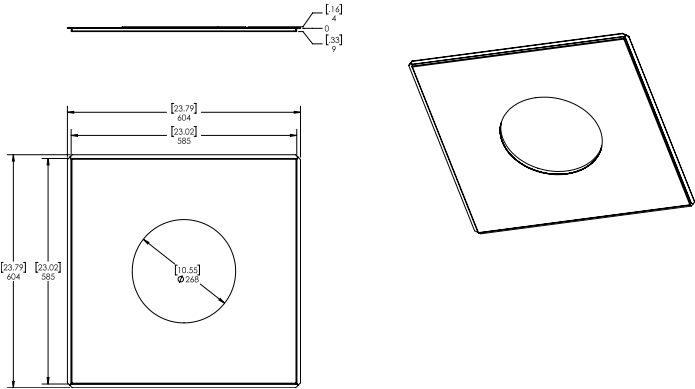
IN-CEILING MOUNT



WALL MOUNT







METAL CEILING PANEL



ORDERING INFORMATION

The variety of mounting options for the H4 Multisensor provides maximum flexibility. All the available camera modules can be used in any of the mounting options.

MOUNTING SCENARIO		ORDERING INFORMATION
PENDANT WALL MOUNT		Order one of: <ul style="list-style-type: none"> • Camera module • H4AMH-AD-PEND1 • H4AMH-DO-COVR1 or H4AMH-DO-COVR1-SMOKE • IRPTZ-MNT-WALL1 • Optional, H4AMH-AD-IRIL1
PENDANT NPT MOUNT		Order one of: <ul style="list-style-type: none"> • Camera module • H4AMH-AD-PEND1 • H4AMH-DO-COVR1 or H4AMH-DO-COVR1-SMOKE • IRPTZ-MNT-NPTA1 • Optional, H4AMH-AD-IRIL1
SURFACE MOUNT		Order one of: <ul style="list-style-type: none"> • Camera module • H4AMH-AD-DOME1 • H4AMH-DO-COVR1 or H4AMH-DO-COVR1-SMOKE • Optional, H4AMH-AD-IRIL1
IN-CEILING MOUNT		Order one of: <ul style="list-style-type: none"> • Camera module • H4AMH-AD-CEIL1 • H4AMH-DC-COVR1 or H4AMH-DC-COVR1-SMOKE • Optional, H4AMH-DC-CPNL1 if ceiling panel is needed

CAMERA MODULES

With the modular design of the H4 Multisensor, any camera module can be paired with any mounting adapter for maximum versatility and optimal installation. Each camera module must be ordered with a matching mounting adapter and dome cover.

DISPLAY PART NUMBER	DESCRIPTION
9C-H4A-3MH-270	3x3 MP, WDR, LightCatcher, 2.8 mm, Camera Only
9C-H4A-3MH-180	3x3 MP, WDR, LightCatcher, 4 mm, Camera Only
15C-H4A-3MH-270	3x5 MP, WDR, LightCatcher, 2.8 mm, Camera Only
15C-H4A-3MH-180	3x5 MP, WDR, LightCatcher, 4 mm, Camera Only
24C-H4A-3MH-270	3x4K (8 MP), WDR, LightCatcher, 4 mm, Camera Only
24C-H4A-3MH-180	3x4K (8 MP), WDR, LightCatcher, 5.2 mm, Camera Only
12C-H4A-4MH-360	4x3 MP, WDR, LightCatcher, 2.8 mm, Camera Only
20C-H4A-4MH-360	4x5 MP, WDR, LightCatcher, 2.8 mm, Camera Only
32C-H4A-4MH-360	4x4K (8 MP), WDR, LightCatcher, 4 mm, Camera Only

MOUNTING ADAPTERS AND DOME COVERS

The H4 Multisensor modular design provides pendant, surface, or in ceiling mounting adapters and a choice of two dome covers compatible with all the H4 Multisensor camera modules.

DISPLAY PART NUMBER	DESCRIPTION
H4AMH-AD-DOME1	Outdoor surface mount adapter, must order either a H4AMH-DO-COVR1 or H4AMH-DOCOVR1- SMOKE.
H4AMH-AD-PEND1	Outdoor pendant mount adapter, must order one of IRPTZ-MNT-WALL1 or IRPTZ-MNTNPTA1 and one of H4AMH-DO-COVR1 or H4AMH-DO-COVR1-SMOKE.
IRPTZ-MNT-WALL1	Pendant wall arm adapter, for use with H4AMH-AD-PEND1 or H4 IRPTZ.
IRPTZ-MNT-NPTA1	Pendant NPT adapter for use with H4AMH-AD-PEND1 or H4 IRPTZ.
H4-MT-POLE1	Aluminum pole mounting bracket, compatible with IRPTZ-MNT-WALL1.
H4-MT-CRNR1	Aluminum corner mounting bracket, compatible with IRPTZ-MNT-WALL1.
H4AMH-AD-CEIL1	In-ceiling adapter, must order either a H4AMH-DC-COVR1 or H4AMH-DC-COVR1-SMOKE.
H4AMH-DO-COVR1	Dome bubble and cover, for outdoor surface mount or pendant mount, clear.
H4AMH-DO-COVR1-SMOKE	Dome bubble and cover, for outdoor surface mount or pendant mount, smoked. Not recommended for lowlight applications.
H4AMH-DC-COVR1	Dome bubble and cover, for in-ceiling mount, clear.
H4AMH-DC-COVR1-SMOKE	Dome bubble and cover, for in-ceiling mount, smoked. Not recommended for lowlight applications.
H4AMH-DC-CPNL1	Metal ceiling panel.

OPTIONAL IR ILLUMINATOR

The optional IR Illuminator is available for the H4 Multisensor when mounted in a pendant or surface mount adapter.

DISPLAY PART NUMBER	DESCRIPTION
H4AMH-AD-IRIL1	Optional IR illuminator ring, up to 30 m (100 ft), for use with H4AMH-DO-COVR1.

OPTIONAL INJECTORS AND SWITCHES

DISPLAY PART NUMBER	DESCRIPTION
ES-PS-S4	Managed switch, 5 port, Outdoor IP66, -40 °C (-40 °F) to 50 °C (122 °C), Gigabit Ethernet, AC power input. 1x SFP uplink and 4 port RJ45. Maximum PoE power allocation: Up to 4 ports of PoE+ each, or 2 ports of 60 W PoE each. In 60 W PoE mode, compatible with H4 PTZ, H4 IR PTZ and H4 Multisensor.
ES-PS-MNT-POLE	Pole mount bracket for ES-PS-S4 switch.
POE-INJ2-60W-NA	Indoor single port Gigabit PoE++ 60 W, North American power cord included. May also be used in European Union, Japan, Australia, New Zealand, Mexico, China, South Korea, Russia, Argentina, Saudi Arabia, Kuwait, UAE and Brazil. Temperature range of the PoE injector is -10 °C to +45 °C (14 °F to 113 °F).
POE-INJ2-PLUS	Indoor single port PoE+ injector. Injector operational temperature range -20 °C to +40 °C (-4 °F to 104 °F).

OPTIONAL CAMERA LICENSES AND ACCESSORIES

DISPLAY PART NUMBER	DESCRIPTION
CM-AC-FERR1	Ferrite clamp for use with aux power cable when meeting EN 50121-4 requirements. Pack of 5.

SUPPORT

Learn more and find additional documentation at [avigilon.com](https://www.avigilon.com) or email sales@avigilon.com for specific product support.



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H4 IR PTZ Camera with Self-Learning Video Analytics

The Avigilon H4 IR PTZ is a high-resolution outdoor PTZ camera with a 250 meter (820 feet) IR illumination range that automatically adjusts the IR projection angle according to zoom and field of view, ensuring the scene is illuminated accordingly to camera zoom level. Combined with WDR, image stabilization and Avigilon patented LightCatcher™ technology, this camera provides exceptional images in a wide range of applications and environments. An abrasion-resistant front lens and a built in silicone rubber wiper* ensures undistorted clean images even in adverse weather conditions, making it well-suited for a range of weather and outdoor surveillance applications.

* Available on models with part numbers that end in -WP.



The Avigilon H4 IR PTZ camera combines infrared illumination, fast autofocus, and precise Pan-Tilt-Zoom capabilities for operators to easily detect and follow a moving object with a high level of precision and control with a single camera. The new H4 IR PTZ camera line is available in 1 and 2 megapixel (MP) camera resolutions, situated in a pendant mount suitable for challenging outdoor environments. The 1 MP PTZ camera has 45x zoom, while the 2 MP PTZ has a built-in 30x zoom optical glass front lens for high-quality, detailed images from great distances.

With its powerful zoom lens and IR technology, the H4 IR PTZ allows users to see up to 250 meters (820 feet) in complete darkness. The camera's IR projection angle and distance automatically adjust based on camera zoom lens movement, ensuring the scene is well illuminated for high-quality, detailed images.

Avigilon HDSM SmartCodec™ technology H4 platform optimizes the video stream in real time using automatic ROI encoding to save bandwidth and storage requirements while maintaining image quality.

KEY FEATURES

Optimized for long range illumination up to 250 meters (820 feet) zoomed in or out, allowing the operator to see in total darkness
Built in 850nm IR illumination ensures the scene is well illuminated
Smooth, fast precision PTZ movements with tilt reaching 20 degrees above the horizon
Self-learning video analytics at the home position
1 MP and 2 MP camera resolutions up 60 fps
1 MP zoom to a range of 45x and 2 MP zooms up to 30x
Wide Dynamic Range (WDR), Electronic Image Stabilization (EIS), and LightCatcher technologies provide exceptional image quality
Avigilon's HDSM SmartCodec technology and idle scene mode technology for reduced bandwidth and storage requirements
IK 10 impact rating
Outdoor housing IP66 certified for comprehensive dust and water ingress protection
New H4 IR PTZ mounting adaptors, with wall mount or NPT mount available for order
Compatible with present H4 PTZ corner mount and pole mount accessories

Specifications

		1.0 MP	2.0 MP
IMAGE PERFORMANCE	Image Sensor	WDR 1/2.8" progressive scan CMOS	
	Active Pixels	1280 (H) × 720 (V)	1920 (H) × 1080 (V)
	Imaging Area	4.8 mm (H) × 2.7 mm (V); 0.189" (H) × 0.106" (V)	
	IR Illumination	250 m (820 ft) maximum distance at 0 lux	
	Minimum Illumination	0 lux in IR mode; 0.1 lux (F/1.6) in color mode (no IR); 0.03 lux (F/1.6) in monochrome mode (no IR)	
	Dynamic Range	120+ dB	
	Image Rate	Up to 60 fps	
	(Aspect Ratio) Resolution Scaling	down to (16:9) 384×216 or (5:4) 320×256	
	3D Noise Reduction Filter	Yes, Adjustable Strength	
LENS	Lens	4.3 to 129 mm, F/1.6 – F/4.7, autofocus	4.3 to 129 mm, F/1.6 – F/4.7, autofocus
	Angle of View	1.5° - 63.7°	2.3° - 63.7°
	Optical Zoom	45x	30x
IMAGE CONTROL	Video Compression	H.264 (MPEG-4 Part 10/AVC), Motion JPEG, HDSM SmartCodec technology	
	Streaming	Multi-stream H.264 and Motion JPEG	
	Motion Detection	Selectable sensitivity and threshold	
	Electronic Shutter Control	Automatic, Manual (1/1 to 1/10,000 sec)	
	Iris Control	Automatic, Manual	
	Day/Night Control	Automatic, Manual	
	Flicker Control	50 Hz, 60 Hz	
	White Balance	Automatic, Manual	
	Backlight Compensation	Manual	
	Privacy Zones	Up to 64 zones, 3D privacy mask supported	
	Presets	500 named presets	
	Tours	10 named guard tours	
	Audio Compression Method	G.711 PCM 8 kHz	
	Digital Zoom	Up to 100x when used with ACC™ Client for Windows	
	Electronic Image Stabilization	On/Off	
	Digital Defog	Adjustable/Off	
NETWORK	Network	100BASE-TX	
	Cabling Type	CAT5e	
	Connector	RJ-45	
	ONVIF®	ONVIF compliance version 1.02, 2.00, Profile S, Profile T, Profile G (www.onvif.org)	
	Security	Password protection, HTTPS encryption, digest authentication, WS authentication, user access log, 802.1x port based authentication	
	Protocol	IPv6, IPv4, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTCP, RTP, TCP/UDP, IGMP, ICMP, DHCP, Zeroconf, ARP, LLDP, HSTS	
	Streaming Protocols	RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP	
	Device Management Protocols	SNMP v2c, SNMP v3	
PERIPHERALS	Audio Input/Output	Line level input and output	
	Analog Video Output	N/A	
	External I/O Terminals	Four (4) Alarm In; Two (2) Alarm Out	
	Onboard Storage	microSD/microSDHC/microSDXC slot – video speed class card required. Class V10 or better recommended	
MECHANICAL	Dimensions (ØxH)	Camera — (Ø) 250 mm × (H) 364 mm; (Ø) 9.84" × (H) 14.33"; Camera with wall mount — (W) 363 mm × (L) 250 mm × (H) 457 mm; (W) 14.29" × (L) 9.84" × (H) 17.99"; Camera with NPT mount — (Ø) 250 mm × (H) 444 mm; (Ø) 9.84" × (H) 17.48"	
	Weight	Camera — 6.66 kg; 14.68 lbs; Camera with wall mount — 7.77 kg; 17.13 lbs; Camera with NPT mount — 7.13 kg; 15.72 lbs	
	Front Window	Optical glass	
	Body	Aluminum	
	Housing	Pendant mount	
	Finish	Cast, Powder Coated, Close to RAL9002	
	Tilt	-20° to 90°, Auto-Flip, 300°/second max	
	Pan	360°, endless, 300°/second	
ELECTRICAL	Power Consumption	75 W max with 24 VDC aux power, 71W max with 95W PoE, 105 VA with 24 V AC RMS aux power	
	Power Source	External Power	
		24 VDC ± 10%; 24 VAC rms ± 10%, 50 or 60Hz	
		PoE*	
		95W PoE*: POE-INJ2-95W 60W PoE*: POE-INJ2-60W	
	Aux Power Connection	Red and Black wires	
	RTC Backup Battery	3V manganese lithium	

* High power PoE may not be compatible with all switches or injectors. High power PoE is compatible with Cisco® UPoE, up to 60 W over 4 pairs, or with the high PoE products listed in the Accessories section. Contact Avigilon sales or Avigilon technical support for more information.

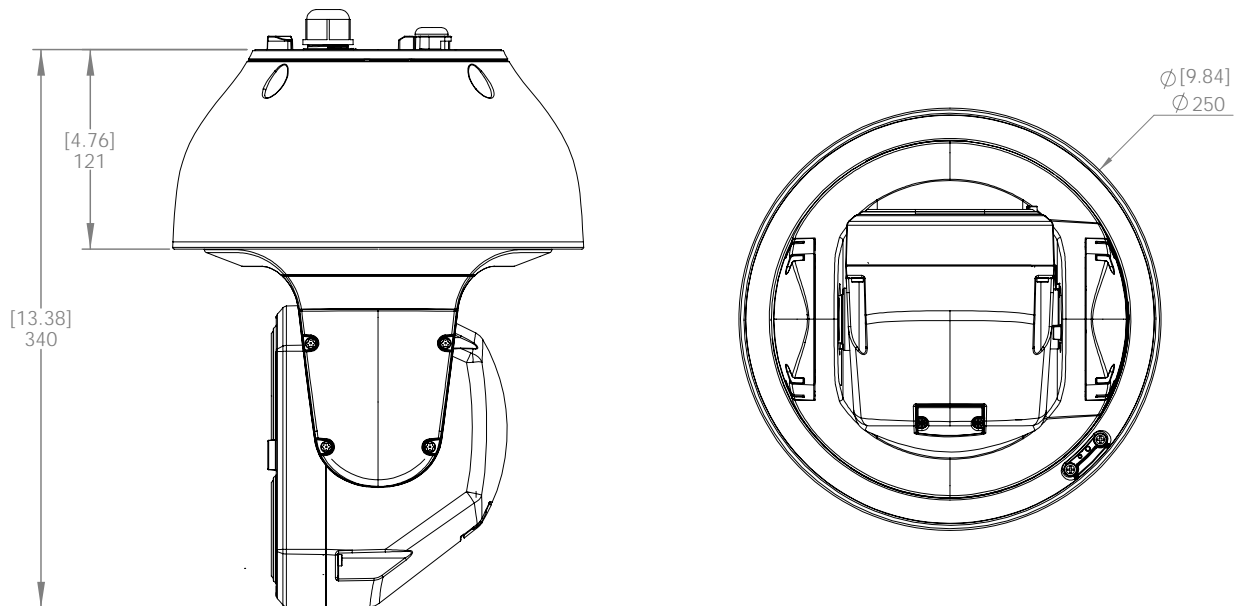
ONVIF is a trademark of Onvif, Inc.

Listed specifications may change without prior notice.

ENVIRONMENTAL	Operating Temperature	-40 °C to +60 °C (-40 °F to 140 °F) with external power or 95 W PoE -10 °C to +50 °C (14 °F to 122 °F) with 60W PoE Wiper is functional at 1 °C to +60 °C (34 °F to 140 °F)
	Storage Temperature	-10 °C to +70 °C (14 °F to 158 °F)
	Humidity	0 - 95% non-condensing
	Cold Start	Up to 60 minute startup delay at temperature lower than -10 °C (14 °F) to warm up the camera before operation. Video will not display during the cold start and errors may be generated in ACC. Video transmission will start and the errors will stop once the camera has warmed up.
CERTIFICATIONS	Certifications/Directives	UL, cUL, CE, ROHS, RCM, EAC, BIS, KC, UKCA, NOM
	Safety	UL 62368-1, CSA 62368-1, IEC/EN 62368-1
	Environmental	IK10 Impact Rating, IEC 60529 IP66 Rating, UL/CSA/IEC 60950-22
	Electromagnetic Emissions	FCC Part 15 Subpart B Class B, IC ICES-003 Class B, EN 55032 Class B, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3
	Electromagnetic Immunity	EN 55035, EN 61000-6-1
	Industrial EMC	EN 50121-4
SUPPORTED VIDEO ANALYTICS EVENTS AT HOME POSITION	Objects in Area	The event is triggered when the selected object type moves into the region of interest
	Object Loitering	The event is triggered when the selected object type stays within the region of interest for an extended amount of time.
	Objects Crossing Beam	The event is triggered when the specified number of objects have crossed the directional beam that is configured over the camera's field of view. The beam can be unidirectional or bidirectional.
	Object Appears or Enters Area	The event is triggered by each object that enters the region of interest. This event can be used to count objects.
	Object Not Present in Area	The event is triggered when no objects are present in the region of interest.
	Objects Enter Area	The event is triggered when the specified number of objects have entered the region of interest.
	Objects Leave Area	The event is triggered when the specified number of objects have left the region of interest.
	Object Stops in Area	The event is triggered when an object in a region of interest stops moving for the specified threshold time.
	Direction Violated	The event is triggered when an object moves in the prohibited direction of travel.
	Tamper Detection	The event is triggered when the scene unexpectedly changes.

Outline Dimensions

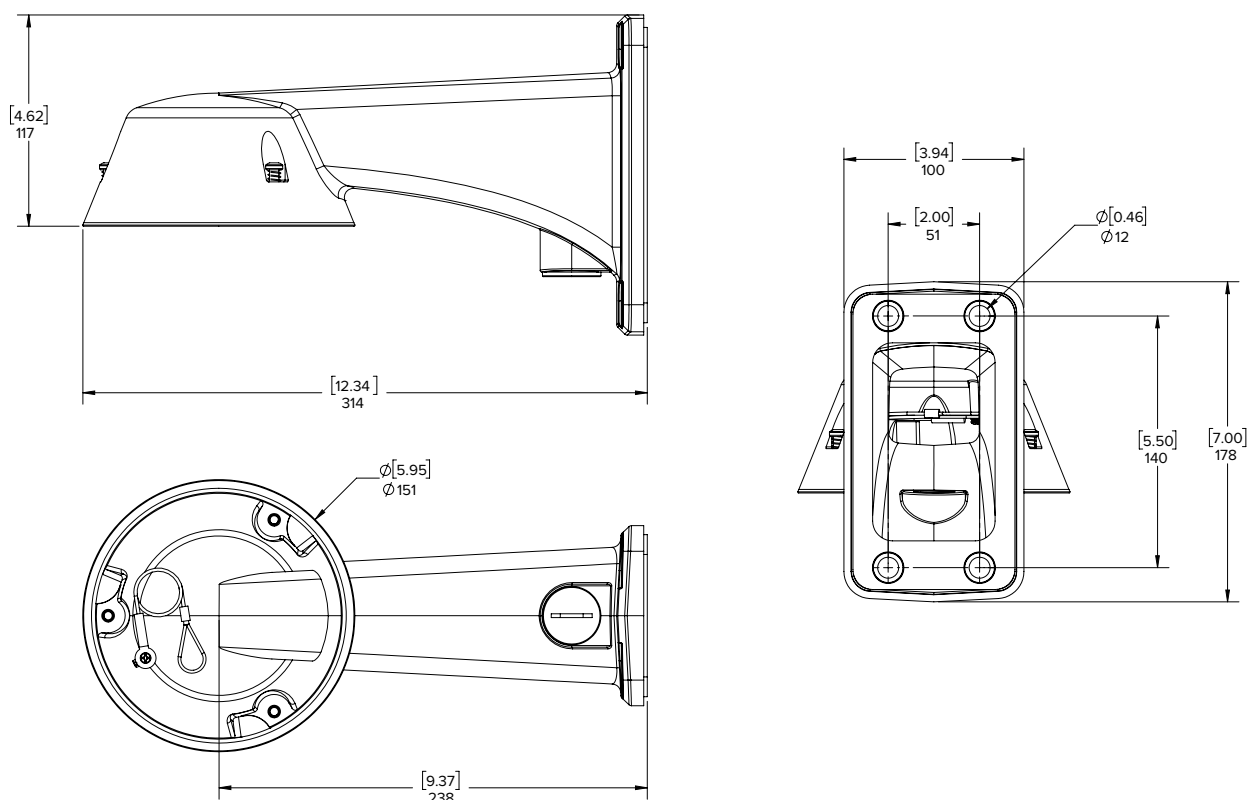
Camera



NPT Mount



Wall Mount



Ordering Information

CAMERAS	DESCRIPTION	MP	ZOOM	IR RANGE	ANALYTICS	WDR	LIGHTCATCHER
1.0C-H4IRPTZ-DP45	1MP H4 IR PTZ, 45X, Self-learning analytics, IK10, IP66, 250m IR	1	45	250m (820feet)	Yes	Yes	Yes
2.0C-H4IRPTZ-DP30	2MP H4 IR PTZ, 30X, Self-learning analytics, IK10, IP66, 250m IR	2	30	250m (820feet)	Yes	Yes	Yes
1.0C-H4IRPTZ-DP45-WP	1MP H4 IR PTZ with Wiper 45X, Self-learning analytics, IK10, IP66, 250m IR	1	45	250m (820feet)	Yes	Yes	Yes
2.0C-H4IRPTZ-DP30-WP	2MP H4 IR PTZ, with Wiper 30X, Self-learning analytics, IK10, IP66, 250m IR	2	30	250m (820feet)	Yes	Yes	Yes
ACCESSORIES							
IRPTZ-MNT-WALL1	Mount, Pendant wall, IR PTZ						
IRPTZ-MNT-NPTA1	Mount, Pendant NPT Adapter, IR PTZ						
POE-INJ2-95W-NA*	Single Port PoE Injector Gigabit, 95W, NA for use with H4IR PTZ - indoor installation rated. Temperature range of the PoE injector is -10C to +45C.						
POE-INJ2-60W**	Single Port PoE Injector Gigabit, 60W, NA for use with H4IR PTZ - indoor installation rated. Temperature range of the PoE injector is -10C to +45C. Note: Use of 60W PoE injector reduces the temperature range of the camera. Please look at footnote						
H4-MT-POLE1	Pole Mounting Bracket, compatible with IRPTZ-MNT-WALL1						
H4-MT-CRNR1	Corner Mounting Bracket, compatible with IRPTZ-MNT-WALL1						

* POE 95W injector: This model is provided with North American plug only; other regions may use certified power cord with C13 on one side and the country specific plug on the other side. Countries supported must accept one of the following certifications: UL, cUL, CE, VCCI, CCC, C-Tick.

** POE 60W injector: The camera will operate correctly in reduced temperature range from -10°C to +50°C (14°F to 122°F) with 60W POE. This POE injector model is provided with North American plug only; other regions may use certified power cord with C13 on one side and the country specific plug on the other side. Countries supported must accept one of the following certifications: UL, cUL, CE, VCCI, CCC, C-Tick, KC, EAC.

H4 THERMAL CAMERA LINE

VGA

QVGA

The Avigilon H4 Thermal camera is embedded with our self-learning video analytics to provide long-range perimeter protection and leverages thermal technology to operate under challenging conditions while minimizing false alarms. It is designed to detect the presence and movement of people and vehicles in areas with poor visibility, including partly camouflaged scenes, low lighting and even absolute darkness, without the need for additional light sources.



Scenes captured with H4 Thermal VGA camera.

FEATURES



SELF-LEARNING VIDEO ANALYTICS

Detect and classify objects in challenging lighting/darkness or extreme environments such as weather, dust, debris, smoke or foliage.



MULTIPLE LENS OPTIONS

Choose from three athermalized lens variants to optimize on-site coverage requirements.



HDSM SMARTCODECTM TECHNOLOGY

Optimizes compression levels for regions in a scene to help maximize bandwidth savings, helping to keep internet connectivity costs down.



RELAY I/O CONNECTIONS

Configure input/output actions and alarms for fast event response.



ONVIF® COMPLIANT

Built on an open platform to allow integration with other security solutions.

ONVIF is a trademark of Onvif, Inc.

SPECIFICATIONS

IMAGE PERFORMANCE	QVGA	VGA
Image Sensor	320x256 Uncooled VOx Microbolometer	640x512 Uncooled VOx Microbolometer
Pixel Pitch	12µm	
Spectral Range	8µm to 14µm	
Aspect Ratio	5:4	
Imaging Rate	8.6 fps	
Dynamic Range	-40 °C to 225 °C (-40 °F to 437 °F) [may vary based on operating temperature]	
Resolution Scaling	320x256, can be scaled up to 640x512	640x512, can be scaled down to 320x256
3D Noise Reduction Filter	Yes	
Sensitivity	NETD <60mK	
Image Uniformity Optimization	Automatic Flat Field Correction (FFC) - Thermal and Temporal	

LENS						
Lens	4.3 mm, F1.0, Athermalized	9.1 mm, F1.0, Athermalized	18.0 mm, F1.0, Athermalized	8.7 mm, F1.0, Athermalized	18.0 mm, F1.0, Athermalized	36.0 mm, F1.0, Athermalized
Angle of View (H x V)	45.9° x 36.5°	21.6° x 17.0°	10.8° x 8.4°	50.7° x 40.4°	24.3° x 19.3°	12.2° x 9.7°

IMAGE CONTROL		
Image Compression Method	H.264 (MPEG-4 Part 10/AVC), Motion JPEG	
Streaming	Multi-stream H.264 & MJPEG	
Bandwidth Management	Idle Scene Mode, HDSM SmartCodec Technology	
Motion Detection	Pixel and Classified Objects	
Tamper Detection	Yes	N/A
Privacy Zones	Up to 64 Zones	
Audio Compression Method	G.711 PCM 8kHz	

NETWORK		
Network	100BASE-TX	
Cabling Type	CAT5	
Connector	RJ-45	
ONVIF	ONVIF® compliant with Profile S, Profile T, and Profile G (www.onvif.org)	ONVIF® compliant with Profile S and Profile G (www.onvif.org)
Security	Password protection, HTTPS encryption, digest authentication, WS authentication, user access log, 802.1x port based authentication	
Protocols	IPv6, IPv4, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, Zeroconf, ARP, HSTS	
Streaming Protocols	RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP	
Device Management Protocols	SNMP v2c, SNMP v3	

PERIPHERALS	
USB Port	USB 2.0
Onboard Storage	SD/SDHC/SDXC slot – video speed class card required. Class V10 or better recommended.
External I/O Terminals	Alarm In, Alarm Out
Audio Input/Output	Line level input and output

MECHANICAL		QVGA;	VGA
Dimensions (LxWxH)		335 mm x 126 mm x 91 mm; 13.18" x 4.97" x 3.58" (including mounting bracket and fully extended sunshield overhang)	
Weight	Camera	1.72 kg (3.79 lbs) Applicable to both 640S-H4A-THC-B024 and 640S-H4A-THC-B050.	1.92 kg (4.23 lbs) Applicable to 640S-H4A-THC-B012 only.
	Mounting Bracket	0.21 kg (0.46 lbs)	
Body		Aluminium	
Housing		Surface mount, tamper resistant	
Finish		Cast, powder coated, close to RAL 9003	
Adjustment Range		±175° pan, ±90° tilt, ±175° azimuth	

ELECTRICAL			
Power Consumption		8W	9W
Power Source		VDC: 12V +/- 10%, 8W min. VAC: 24V +/- 10%, 15VA min. PoE: IEEE802.3af Class 3 compliant	VDC: 12V +/- 10%, 9W min. VAC: 24V +/- 10%, 15VA min. PoE: IEEE802.3af Class 3 compliant
RTC Backup Battery		3V manganese lithium	

ENVIRONMENTAL	
Operating Temperature	-40 °C to +65 °C (-40 °F to 149 °F)
Storage Temperature	-10 °C to +70 °C (14 °F to 158 °F)
Humidity	0 - 93% non-condensing

CERTIFICATIONS			
Certifications/Directives		UL, cUL, CE, UKCA, ROHS, Reach (SVHC), WEEE, RCM, EAC, NOM	
Safety		UL 62368-1, CSA 62368-1, IEC/EN 62368-1	
Environmental		UL/CSA/IEC 60950-22, IEC 60529 IP66 Weather Rating, IK10 Impact Rating (including window)	UL/CSA/IEC 60950-22, IEC 60529 IP66 and IP67 Weather Rating, IK10 Impact Rating (enclosure only)
Electromagnetic Emissions		FCC Part 15 Subpart B Class B, IC ICES-003 Class B, EN 55032 Class B, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3	
Electromagnetic Immunity		EN 55024, EN 61000-6-1, EN 50130-4	EN 55024, EN 61000-6-1

ANALYTICS SPECIFICATIONS

SUPPORTED VIDEO ANALYTIC EVENTS	
Objects in Area	The event is triggered when the selected object type moves into the region of interest.
Object Loitering	The event is triggered when the selected object type moves into the region of interest and then stays for an extended amount of time.
Objects Crossing Beam	The event is triggered when the specified number of objects have crossed the directional beam that is configured over the camera's field of view. The beam can be unidirectional or bidirectional.
Object Appears or Enters Area	The event is triggered by each object that enters the region of interest. This event can be used to count objects.
Object Not Present in Area	The event is triggered when no objects are present in the region of interest.
Objects Enter Area	The event is triggered when the specified number of objects have entered the region of interest.
Objects Leave Area	The event is triggered when the specified number of objects have left the region of interest.
Object Stops in Area	The event is triggered when an object moves into a region of interest and then stops moving for the specified threshold time.
Direction Violated	The event is triggered when an object moves in the prohibited direction of travel.
Tamper Detection	The event is triggered when the scene unexpectedly changes.

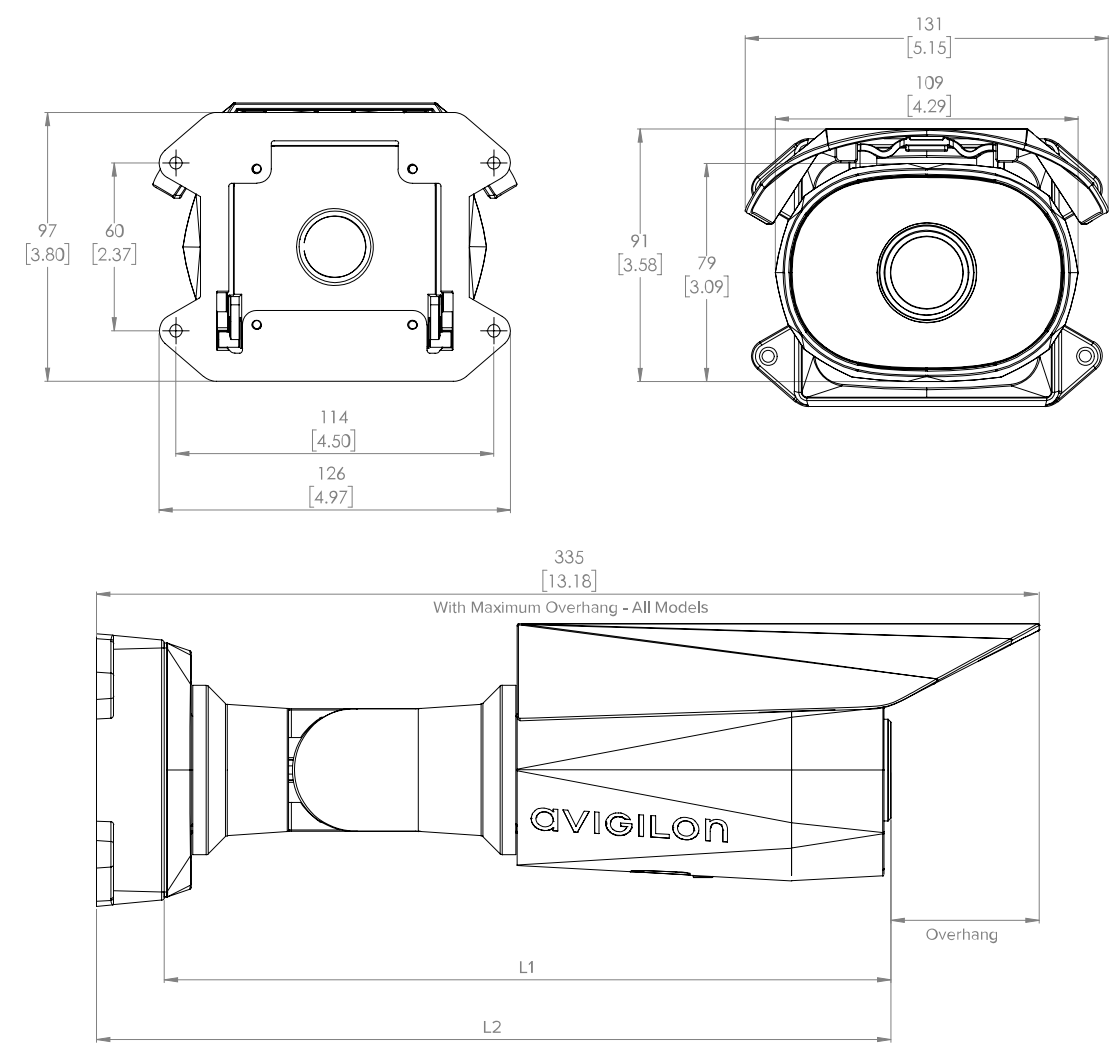
CLASSIFIED OBJECT DETECTION RANGE	RESOLUTION	VIEWING ANGLE (H X V)	HUMAN	VEHICLE
4.3 mm	320 x 256	45.9° x 36.5°	68m (224')	80m (263')
9.1 mm	320 x 256	21.6° x 17.0°	150m (493')	160m (525')
18 mm	320 x 256	10.8° x 8.4°	220m (722')	225m (739')
8.7 mm	640 x 512	50.7° x 40.4°	120m (394')	142m (466')
18 mm	640 x 512	24.3° x 19.3°	210m (689')	225m (739')
36 mm	640 x 512	12.2° x 9.7°	310m (1017')	319m (1047')

The detection ranges may vary in different weather conditions.

OUTLINE DIMENSIONS

CAMERA

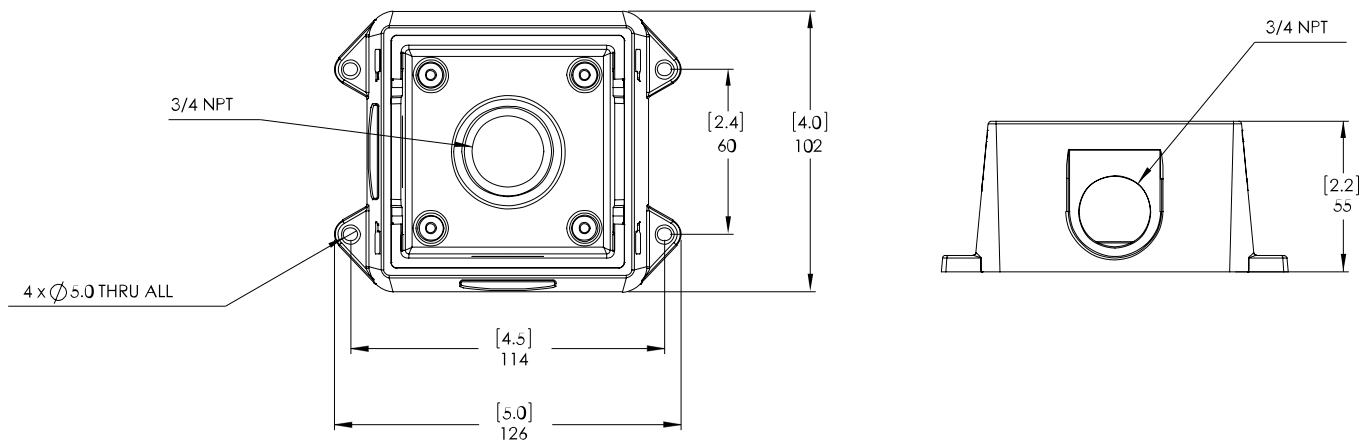
[X.X]	INCHES
X	MM



CAMERA	L1	L2
640S-H4A-THC-B012	276 mm (10.87")	300 mm (11.81")
All other models	257 mm (10.14")	281 mm (11.08")

JUNCTION BOX

[X.X]	INCHES
X	MM



ORDERING INFORMATION

	RESOLUTION	NETD	LENS	HDSM SMARTCODEC
320S-H4A-THC-B050	320 x 256	< 60 mK	4.3 mm	✓
320S-H4A-THC-B024	320 x 256	< 60 mK	9.1 mm	✓
320S-H4A-THC-B012	320 x 256	< 60 mK	18 mm	✓
640S-H4A-THC-B050	640 x 512	< 60 mK	8.7 mm	✓
640S-H4A-THC-B024	640 x 512	< 60 mK	18 mm	✓
640S-H4A-THC-B012	640 x 512	< 60 mK	36 mm	✓
H4-B0-JBOX1	Junction box for H4 HD Bullet Cameras			
H4-MT-POLE1	Aluminum pole mounting bracket for bullet cameras, compatible with H4-B0-JBOX1			
H4-MT-CRNR1	Aluminum corner mounting bracket for bullet cameras, compatible with H4-B0-JBOX1			
H4-AC-WIFI2-NA	USB Wifi Adapter			
H4-AC-WIFI2-EU	USB Wifi Adapter			

SUPPORT

Learn more and find additional documentation at [avigilon.com](https://www.avigilon.com) or email asksales@avigilon.com for specific product support.



Sep 2021 | Rev 6

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H5A CAMERA LINE

2 MP

4 MP

5 MP

6 MP

8 MP

The Avigilon H5A camera line features our embedded Next-Generation Video Analytics for enhanced object detection, tracking and classification, Unusual Activity Detection (UAD), Facial Recognition technology and support for Avigilon Appearance Search™ technology to help ensure critical events do not go unnoticed. These advanced capabilities help provide detailed information on what is happening on your site so you can detect potentially critical security events faster and take responsive action.



FEATURES



NEXT-GENERATION VIDEO ANALYTICS

Detects more objects with expanded object classification and greater accuracy for faster responses, even in crowded scenes.



H.264 AND H.265 WITH HDSM SMARTCODEC™ TECHNOLOGY

Optimizes compression levels for regions in a scene to help maximize bandwidth savings and keep internet connectivity costs down.



TRUE WIDE DYNAMIC RANGE

Available in all resolutions, capture details in scenes with both very bright and dark areas.



ONVIF® COMPLIANT

ONVIF Profile S, T and G compliance allows easy integration with existing ONVIF infrastructures.



FIPS 140-2 COMPLIANT

Brings increased data security with FIPS-compliant cryptography enabled on cameras¹.



FOCUS OF ATTENTION WITH ACC™ 7

Leverages AI and video analytics technologies to determine what information is important and should be presented to security operators.



LIGHTCATCHER™ TECHNOLOGY

Offers excellent image detail in low-light settings.



MULTIPLE LENS OPTIONS

Choose from various lens types, including long zoom, for flexible coverage options.

ONVIF is a trademark of Onvif, Inc.

¹ Optional purchase of FIPS Level 1 camera license or CRYPTR microSD hardware-based encryption and key management for FIPS Level 3 support and certification.

SPECIFICATIONS

IMAGE PERFORMANCE		2.0 MP	4.0 MP	5.0 MP	6.0 MP	8.0 MP (4K ULTRA HD)
Image Sensor		1/2.8" progressive scan CMOS			1/1.8" progressive scan CMOS	
Max Resolution (H x V) and Aspect Ratio		(16:9) 1920 x 1080	(16:9) 2560 x 1440 (4:3) 2304 x 1728	(4:3) 2592 x 1944 (16:9) 2560 x 1440	(16:9) 3200 x 1800 (3:2) 3072 x 2048	(16:9) 3840 x 2160
Dynamic Range	WDR Off	83 dB	83 dB	83 dB	85 dB	85 dB
	WDR On	126 dB (dual exposure, 30 fps) 132 dB (triple exposure, 20 fps or less)	126 dB	126 dB	120 dB	120 dB
Max Image Rate		(50 Hz/60 Hz): 25 fps/30 fps				
Bandwidth Management		HDSM SmartCodec technology; Idle scene mode				
3D Noise Reduction Filter		Yes				

LENS AND IR ILLUMINATION		3.3 – 9 MM	4.9 – 8 MM	9 – 22 MM	4.7 – 84.6 MM
IR Illumination Max Distance ¹ (high power 850 nm LEDs)	Dome	35 m (115 ft), full tele 15 m (49 ft), full wide	30 m (98 ft), full tele 15 m (49 ft), full wide	N/A	N/A
	Bullet	50 m (164 ft), full tele 30 m (98 ft), full wide	50 m (164 ft), full tele 30 m (98 ft), full wide	90 m (295 ft), full tele 60 m (197 ft), full wide	N/A
Minimum Illumination	2 MP	0.027 lux in color mode, 0.014 lux in monochrome mode, 0 lux with IR	N/A	0.052 lux in color mode, 0.026 lux in monochrome mode, 0 lux with IR	0.039 lux in color mode, 0.02 lux in monochrome mode
	4 MP	0.03 lux in color mode, 0.015 lux in monochrome mode, 0 lux with IR	N/A	0.058 lux in color mode, 0.029 lux in monochrome mode, 0 lux with IR	N/A
	5 MP	N/A	N/A	0.058 lux in color mode, 0.029 lux in monochrome mode, 0 lux with IR	N/A
	6 MP	N/A	0.055 lux in color mode, 0.028 lux in monochrome mode, 0 lux with IR	N/A	N/A
	8 MP	N/A	0.055 lux in color mode, 0.028 lux in monochrome mode, 0 lux with IR	N/A	N/A
Horizontal Angle of View Based on Aspect Ratio	2 MP	(16:9) 34° – 99°	N/A	(16:9) 14° – 31°	(16:9) 4.1° – 60°
	4 MP	(16:9)(4:3) 34° – 92°	N/A	(16:9) 14° – 31° (4:3) 10° – 24°	N/A
	5 MP	N/A	N/A	(16:9)(4:3) 14° – 31°	N/A
	6 MP	N/A	(16:9) 52° – 92°; (3:2) 41° – 73°	N/A	N/A
	8 MP	N/A	(16:9) 52° – 92°	N/A	N/A
Vertical Angle of View Based on Aspect Ratio	2 MP	(16:9) 18° – 53°	N/A	(16:9) 7.8° – 16.7°	(16:9) 2.3° – 34°
	4 MP	(16:9) 18° – 50° (4:3) 25° – 68°	N/A	(16:9) 8.2° – 17.4° (4:3) 10° – 24°	N/A
	5 MP	N/A	N/A	(16:9) 8.1° – 17.4° (4:3) 11° – 23°	N/A
	6 MP	N/A	(16:9) 29° – 51°; (3:2) 27° – 48°	N/A	N/A
	8 MP	N/A	(16:9) 29° – 51°	N/A	N/A
Max Aperture		F1.3	F1.8	F1.6	F1.6
Control		P-Iris, Remote Focus and Zoom			

¹ IR illumination power may be reduced at higher operating temperatures.

IMAGE CONTROL	
Image Compression Method	H.264 HDSM SmartCodec, H.265 HDSM SmartCodec, Motion JPEG
Streaming	Multi-stream H.264, Multi-stream H.265, Motion JPEG; HDSM™ 2.0 on 4.0 MP, 5.0 MP, 6.0 MP, and 4K (8.0 MP) cameras
Motion Detection	Pixel motion: Selectable sensitivity and threshold. Classified object detection
Camera Tamper Detection	Yes
Electronic Shutter Control	Automatic, Manual (1/7 to 1/8196 sec)
Iris Control	Automatic, Open, Closed
Day/Night Control	Automatic, Manual
Flicker Control	60 Hz, 50 Hz
White Balance	Automatic, Manual
Backlight Compensation	Adjustable
Privacy Zones	Up to 64 zones

NETWORK	
Network	100BASE-TX, RJ45 Connector, CAT5e Cabling
ONVIF	ONVIF compliance version 1.02, 2.00, Profile S, Profile T, Profile G (www.onvif.org)
Security	Password protection, HTTPS encryption, digest authentication, WS authentication, user access log, 802.1x port based authentication, FIPS 140-2 L1 (with optional camera license), FIPS 140-2 L3 (with optional accessory)
Protocols	IPv6, IPv4, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, Zeroconf, ARP, HSTS
Streaming Protocols	RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP
Device Management Protocols	SNMP v2c, SNMP v3

PERIPHERALS		
USB Port		USB 2.0
Onboard Storage	Dome	microSD/microSDHC/microSDXC slot – video speed class card required. Class V10 or better recommended.
	Bullet and Box	SD/SDHC/SDXC slot – video speed class card required. Class V10 or better recommended.

AUXILIARY I/O	
Audio Compression Method	G.711 PCM 8 kHz, Opus
Audio Input/Output	Line level input and output
External I/O Terminals	Alarm In, Alarm Out
RS-485 Terminal	Yes, Box camera only

MECHANICAL (DOME)	INDOOR SURFACE MOUNT	INDOOR IN-CEILING MOUNT	OUTDOOR SURFACE MOUNT
Dimensions (LxWxH)	163 mm x 163 mm x 118 mm; 6.4" x 6.4" x 4.7"	181 mm x 181 mm x 164 mm; 7.1" x 7.1" x 6.5"	163 mm x 163 mm x 121 mm; 6.4" x 6.4" x 4.8"
Weight	0.99 kg (2.18 lbs)	1.64 kg (3.62 lbs)	1.39 kg (3.06 lbs)
Dome Bubble	Polycarbonate		
Body	Plastic, Aluminum		Aluminum
Housing	Surface mount, tamper resistant	Recessed mount, tamper resistant	Surface mount, vandal resistant
Finish	Plastic, injection molded, close to RAL9002	Plastic, gray; Aluminum, powder coat, black	Cast, powder coated, close to RAL9002
Adjustment Range	360° pan, ±180° azimuth, 9° – 95° tilt (30° – 95° with -IR option)		

MECHANICAL (PENDANT DOME)	PENDANT CAMERA ONLY	WITH WALL MOUNT (H4A-MT-WALL1)	WITH NPT MOUNT (H4A-MT-NPTA1)
Dimensions (LxWxH)	172 mm x 172 mm x 124 mm; 6.8" x 6.8" x 4.9"	275 mm x 172 mm x 152.1 mm; 10.8" x 6.8" x 6.0"	172 mm x 172 mm x 172.3 mm; 6.8" x 6.8" x 6.8"

MECHANICAL (PENDANT DOME)	PENDANT CAMERA ONLY	WITH WALL MOUNT (H4A-MT-WALL1)	WITH NPT MOUNT (H4A-MT-NPTA1)
Weight	1.59 kg (3.51 lbs)	3.04 kg (6.70 lbs)	1.84 kg (4.06 lbs)
Dome Bubble	Polycarbonate		
Body	Aluminum		
Housing	Pendant mount, vandal resistant		
Finish	Cast, powder coated, close to RAL9002		
Adjustment Range	360° pan, ±180° azimuth, 9° – 95° tilt (30° – 95° with -IR option)		

MECHANICAL (BULLET)		
Dimensions (LxWxH)		280 mm x 126 mm x 91 mm; 11.04" x 4.97" x 3.58" (including mounting bracket)
Weight	Camera	1.71 kg (3.77 lbs)
	Mounting Bracket	0.21 kg (0.46 lbs)
Body		Aluminum
Housing		Surface mount, tamper resistant
Finish		Cast, powder coated, close to RAL9002
Adjustment Range		±175° pan, ±90° tilt, ±175° azimuth

MECHANICAL (BOX)	
Dimensions (LxWxH)	
168 mm x 76 mm x 67 mm; 6.6" x 3.0" x 2.6"	
Weight	
0.62 kg (1.4 lbs)	
Body	
Aluminum	
Camera Mount	
1/4" -20 UNC (top and bottom)	
Finish	
Cast, powder coated, black	

ELECTRICAL				
Power Consumption	Bullet	13 W max		
	Dome	13 W max (11 W with no IR or IR disabled)		
	Box	7 W max		
Power Source	Bullet	VDC: 12 V ± 10%, 13 W min	VAC: 24 V ± 10%, 15 VA min	PoE: IEEE802.3af Class 3 compliant
	Dome	VDC: 12 V ± 10%, 12 W min	VAC: 24 V ± 10%, 13 VA min	PoE: IEEE802.3af Class 3 compliant
	Box	VDC: 12 V ± 10%, 7 W min	VAC: 24 V ± 10%, 9 VA min	PoE: IEEE802.3af Class 3 compliant
RTC Backup Battery		3V manganese lithium		
Memory		2 GB RAM, 512 MB Flash		

ENVIRONMENTAL		
Operating Temperature	Bullet	-40 °C to +60 °C (-40 °F to 140 °F), in enclosed space -40 °C to +65 °C (-40 °F to 149 °F), with ambient convection
	Dome	-40 °C to +65 °C (-40 °F to 149 °F)
	Box	-10 °C to +60 °C (-14 °F to 140 °F)
IR Illuminator Behavior	Bullet	IR illuminator will turn off if the temperature is 61 °C (141 °F) or higher. The illuminator will operate at 50% power if the temperature is between 55 °C (131 °F) and 61 °C (141 °F). Hysteresis: 5 °C (9 °F).
	Indoor Dome	IR illuminator will turn off if the temperature is 55 °C (131 °F) or higher. The illuminator will operate at 50% power if the temperature is between 44 °C (111 °F) and 55 °C (131 °F). Hysteresis: 2 °C (3.6 °F).
	Outdoor Dome	IR illuminator will turn off if the temperature is 57 °C (135 °F) or higher. The illuminator will operate at 50% power if the temperature is between 49 °C (120 °F) and 57 °C (135 °F). Hysteresis: 2 °C (3.6 °F).
Storage Temperature		-10 °C to +70 °C (14 °F to 158 °F)
Humidity		0 - 95% non-condensing

CERTIFICATIONS		
Certifications/Directives		UL, cUL, CE, ROHS, Reach (SVHC), RCM, EAC, BIS, KC, UKCA, NOM
Safety		UL 62368-1, CSA 62368-1, IEC/EN 62368-1, IEC 62471 (with -IR option)
Environmental	Bullet	UL/CSA/IEC 60950-22, IEC 60529 IP66 and IP67 Weather Rating, IEC 62262 IK10 Impact Rating
	Outdoor Dome	UL/CSA/IEC 60950-22, IEC 60529 IP66 and IP67 Weather Rating, IEC 62262 IK10 Impact Rating
	Indoor Dome	IEC 62262 IK10 Impact Rating
Electromagnetic Emissions	Dome and Bullet	FCC Part 15 Subpart B Class B, IC ICES-003 Class B, EN 55032 Class B, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 50121-4
	Box	FCC Part 15 Subpart B Class B, IC ICES-003 Class B, EN 55032 Class B, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3
Electromagnetic Immunity	Dome and Bullet	EN 55035, EN 61000-6-1, EN 50130-4, EN 50121-4
	Box	EN 55035, EN 61000-6-1

ANALYTICS SPECIFICATIONS

SUPPORTED ANALYTICS EVENTS	
Objects in Area	The event is triggered when the selected object type moves into the region of interest.
Object Loitering	The event is triggered when the selected object type moves into the region of interest and then stays for an extended amount of time.
Objects Crossing Beam	The event is triggered when the specified number of objects have crossed the directional beam that is configured over the camera's field of view. The beam can be unidirectional or bidirectional.
Object Appears or Enters Area	The event is triggered by each object that enters the region of interest. This event can be used to count objects.
Object Not Present in Area	The event is triggered when no objects are present in the region of interest.
Objects Enter Area	The event is triggered when the specified number of objects have entered the region of interest.
Objects Leave Area	The event is triggered when the specified number of objects have left the region of interest.
Object Stops in Area	The event is triggered when an object moves into a region of interest and then stops moving for the specified threshold time.
Direction Violated	The event is triggered when an object moves in the prohibited direction of travel.
Tamper Detection	The event is triggered when the scene unexpectedly changes.

SUPPORTED CLASSIFIED OBJECT TYPES	
Object Types in Outdoor Mode	Vehicle, sub-types: Car, Truck, Bicycle, Motorcycle, Bus Person
Object Types in Indoor Mode	Person

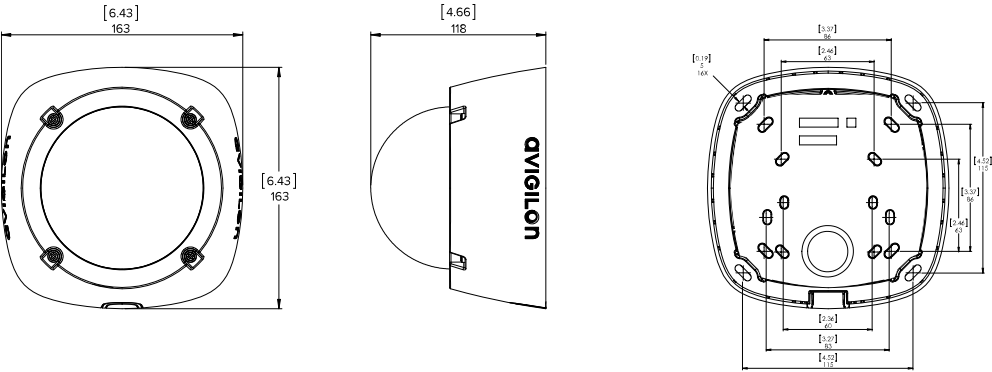
TEACH BY EXAMPLE	
Teach By Example	Yes, when used with Avigilon Control Center™

AVIGILON CONTROL CENTER (ACC) VERSIONS SUPPORTED FEATURES	
ACC Version 6.14.12 or higher	All supported analytic events with two types of classified objects: person or vehicle. Appearance search when paired with appropriate server hardware. H.265 supported.
ACC Version 7.2 or higher	All supported analytic events with people and vehicles and all vehicle sub-types as classified objects. Appearance search when paired with appropriate server hardware. H.265 supported.

OUTLINE DIMENSIONS

SURFACE MOUNT INDOOR DOME CAMERA

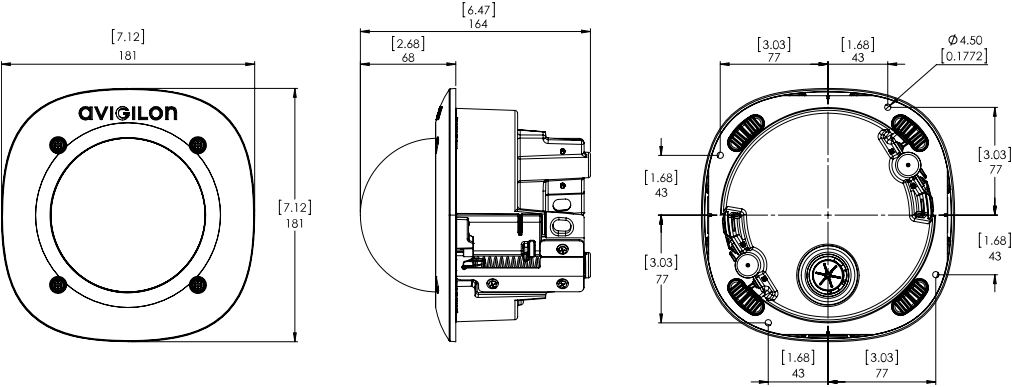
(H5A-D)



[X.X]	INCHES
X	MM

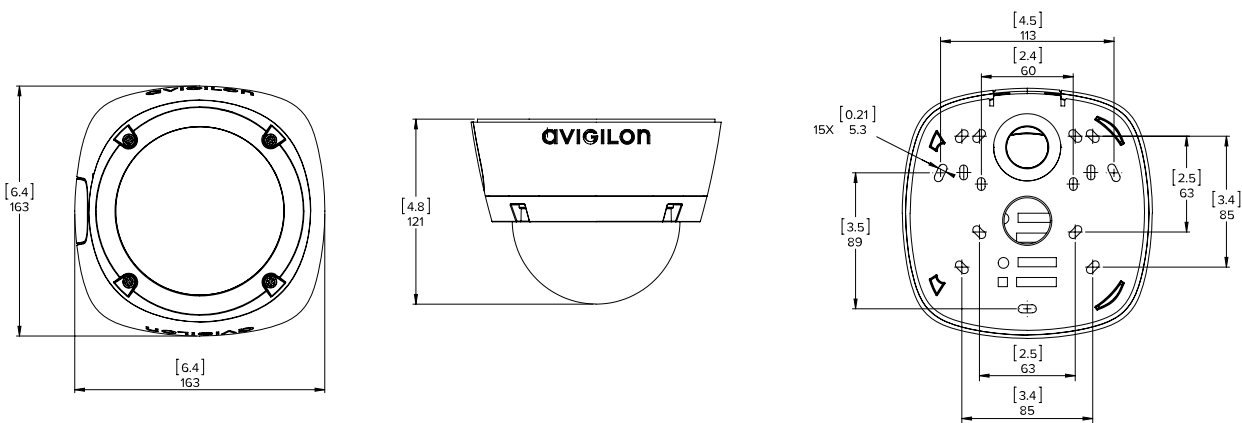
IN-CEILING DOME CAMERA

(H5A-DC)



SURFACE MOUNT OUTDOOR DOME CAMERA

(H5A-DO)



[X.X]	INCHES
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