DH-SD5A425XA-HNR

4MP 25x Starlight + IR PTZ AI Network Camera

- 1/1.8”4Megapixel CMOS
- Powerful 25x optical zoom
- Starlight+ Technology
- Max. 25/30fps@4MP
- IR distance up to 150m
- SMD Plus
- Deep-learning-based perimeter protection
- Auto-tracking and IVS
- PoE+
- IP67 , IK10

AI series products adopt the most advanced AI technologies, including deep learning algorithms that primarily target people and vehicles, which provides higher flexibility and accuracy for end-users. This enables the Dahua AI series to offer various advanced applications such as Face Recognition, ANPR, Metadata, People Counting, traffic data statistics, etc. The complete lineup of Dahua AI includes network (PTZ) cameras, network video recorders, servers, and more devices. Beyond seeing the world, the power of AI allows devices to perceive the environment and understand the world in a better way.

System Overview

Dahua PTZ AI network camera adopts advanced CNN deep learning algorithms to support video structuralization and perimeter protection with high accuracy. Together with infrared illumination and Starlight technology, the camera is the perfect solution for dark, lowlight applications. The series combines a day/night mechanical IR cut filter for the highest image quality in variable lighting conditions during the day, and True WDR for applications with direct sunlight or glare.

Functions

Perimeter Protection
Automatically filtering out false alarms caused by animals, rustling leaves, bright lights, etc. Enables system to act secondary recognition for the targets. Improving alarm accuracy.

Starlight+ Technology
For challenging low-light applications, Dahua’s Starlight Ultra-low Light Technology offers best-in-class light sensitivity, capturing color details in low light down to 0.001 lux. The camera uses a set of optical features to balance light throughout the scene, resulting in clear images in dark environments.

PFA Technology
PFA technology has innovatively introduced new methods of judgment to ensure the accuracy and predictability of the direction of subject distance adjustment. The result is a set of advanced focusing algorithms.PFA ensures clarity of the image throughout the process of zooming and shortens focus time. The realization of PFA technology substantially improves user experience and increases product value.

Environmental
Dahua cameras operate in extreme temperature environments, rated for use in temperatures from-40 °C to +70 °C (-40 °F to +158 °F) with 95% humidity. Subjected to rigorous dust and water immersion tests and certified to the IP67 Ingress Protection rating makes it suitable for demanding outdoor applications.

Wide Dynamic Range
The camera achieves vivid images, even in the most intense contrast lighting conditions, using industry-leading wide dynamic range (WDR) technology. For applications with both bright and low lighting conditions that change quickly, True WDR (120 dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

Auto-tracking
This feature controls the pan/tilt/zoom actions of the camera to automatically track an object in motion and to keep it in the scene. The tracking action can be triggered manually or automatically by defined rules. Once a rule is triggered, the camera can zoom in and track the defined target automatically.

Smart H.265+
Smart H.265+ is the optimized implementation of the H.265 codec that uses a scene-adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality video without straining the network. Smart H.265+ technology reduces bit rate and storage requirements by up to 70% when compared to standard H.265 video compression.

SMD Plus
With Deep-Learning Algorithm, Dahua SMD Plus filters the motion detection alarm triggered by non-concerned target and recognizes human and vehicle effectvely, sending alarms when human and vehicle intrude.

Technical Specification

Camera

Image Sensor	1/1.8" CMOS
Max. Resolution	4MP
Effective Pixels	2560 (H)×1440 (V)
ROM	4GB
RAM	1GB
Electronic Shutter Speed	1/3–1/30000s
Scanning Mode	Progressive Scanning
Minimum Illumination	Color: 0.001Lux@F1.6 B/W: 0.0001Lux@F1.6 0Lux (IR light on)
IR Distance	150 m (492.13 ft)
IR On/Off Control	Zoom Prio/Manual/SmartIR
IR LED Number	4

Lens

Focal Length	5.8mm~145mm			
Aperture	F1.6-4.0			
Field of View	H: 59.8°–2.8°; V: 33.7°–1.9°; D: 63.3°–4°			
Optical Zoom	25x			
Focus Control	Auto/Semi-Auto/Manual			
Close Focus Distance	0.1 m–2 m			
Iris Control	Auto/Manual			
DORI Distance	Detect	Observe	Recognize	Identify
	1724 m (5656.16 ft)	689 m (2260.50 ft)	344 m (1128.61 ft)	172 m (564.30 ft)

PTZ

Pan/Tilt Range	Pan: 0°–360°; Tilt: -15°–+90°
Manual Control Speed	Pan: 0.1°/s–300°/s; Tilt: 0.1°/s–200°/s
Preset Speed	Pan: 400°/s; Tilt: 300°/s
Presets	300
Tour	8(up to 32 preset per tour)
Pattern Number	5
Scanning Number	5
Speed Adjustment	Support
Power-off Memory	Support
Idle Motion	Preset/Tour/Pattern/Scanning
Protocol	DH-SD Pelco-P/D(Auto recognition)

Artifical Intelligence

Video Structuralization	Support the detection of motor vehicle, non-motor vehicle, and human.
Perimeter Protection	Tripwire and intrusion. Support alarm triggering by target types (human and vehicle). Support filtering false alarms caused by animals, rustling leaves, bright lights, etc.
SMD Plus	Support
Auto Tracking	Support
Face Detection	Support

General Intelligence

Event Trigger	Motion detection, video tampering, scene changing, Network disconnection, IP address conflict, illegal access, and storage anomaly.
General IVS	Object Abandoned/Missing

Video

Compression	H.265/H.265+/H.264+/H.264/MJPEG(Sub Stream)
Streaming Capability	3 Streams
Resolution	4M(2560×1440);3M(2048×1536);1080P(1920×1080);720P(1280×960);D1(704× 576/704×480);CIF(352×288/352×240)
Frame Rate	Main stream: 4M/3M(1–25/30fps), 1080P/1.3M/720P(1–25/30fps) Sub stream 1: D1/CIF(1–25/30fps) Sub stream 2: 1080P/1.3M/720P(1–25/30fps), D1/CIF(1–25/30fps)
Bit Rate Control	Variable Bit Rate/Constant Bit Rate
Bit Rate	H.264: 32 Kbps–8192 Kbps H.265: 32 Kbps–8192 Kbps
Day/Night	Support
BLC	Support
WDR	120dB
HLC	Support
White Balance	Auto/Indoor/Outdoor/Tracking/Manual/Sodium lamp/Natural/Street lamp
Gain Control	Auto/Manual
Noise Reduction	2D/3D
Motion Detection	Support
Region of Interest (RoI)	Support
Electronic Image Stabilization (EIS)	Support
Defog	Support
Digital Zoom	16x
Flip	180°
Privacy Masking	Up to 24 areas

Certifications

Certification	CE: EN55032/EN55024/EN50130-4 FCC: Part15 subpartB,ANSI C63.4- 2014

Audio

Audio Compression	G.711A; G.711Mu; G.726; AAC; G.722.1; G.723; G.729; PCM; MPEG2-Layer2

Port

Audio In	1 (LINE IN; bare wire)

Audio Out	1 (LINE OUT; bare wire)
Alarm Port	2 alarm input port; 1 alarm output port
Network	
Ethernet Port	1 RJ-45 Port 10/100Base-T
Protocol	IPv4; IPv6; HTTP; HTTPS; 802.1x; Qos; FTP; SMTP; UPnP; SNMPv1/v2c/v3(MIB-2); DNS; DDNS; NTP; RTSP; RTP; TCP; UDP; IGMP; ICMP; DHCP; PPPoE; ARP; RTCP
Interoperability	ONVIF Profile S&G; CGI
Streaming Method	Unicast/Multicast
Max. User Access	20 (Total bandwidth 48M)
Edge Storage	FTP; Micro SD card (256G); P2P
Browser	IE7 and newer versions Chrome 42 and older versions Firefox 52 and older versions Safari
Management Software	Smart Player / Smart PSS / DSS / Easy4ip
Smart Phone	IOS/Android
Electrical	
Power Supply	AC24V/3A±25% POE+
Power Consumption	11W 20W (IR light on)
Environment	
Operating Conditions	–40°C to +70°C (–40°F to +158°F)
Operating Humidity	≤95%RH
Ingress Protection	IP67; IK10; TVS 6000V lightning protection; surge protection
Construction	
Dimensions	Φ190 mm×332 mm (7.48"×13.07")
Weight	Net Weight: 4.7 kg (10.36 lb); Gross Weight: 8 kg (17.64 lb)
Casing	Metal

Ordering Information

Type	Model	Description
4MP PTZ Camera	SD5A425XA-HNR	4MP 25x Starlight+ IR PTZ AI Network Camera, PAL
	SD5A425XAN-HNR	4MP 25x Starlight+ IR PTZ AI Network Camera, NTSC
	DH-SD5A425XA-HNR	4MP 25x Starlight+ IR PTZ AI Network Camera, PAL
	DH-SD5A425XAN-HNR	4MP 25x Starlight+ IR PTZ AI Network Camera, NTSC
Accessories	PFB305W	Bracket
	AC24V/3A	Power Adapter
	PFA111	Mount Adapter
	PFB300C	Bracket
	PFA150	Clamp

Accessories

Included:

PFB305W
Bracket

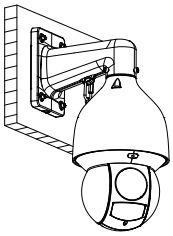
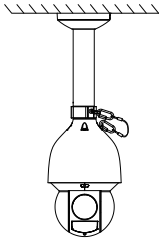
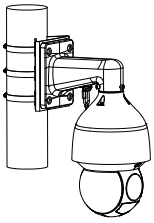
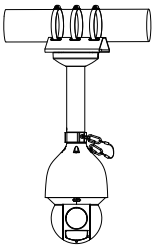
AC24V/3A
Power Adapter

Optional:

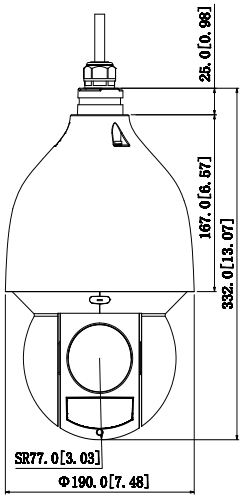
PFA111
Mount Adapter

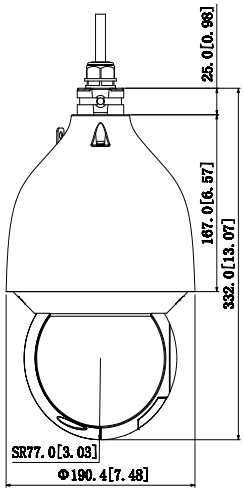
PFB300C
Bracket

PFA150
Clamp

Wall Mount	Hang Mount
PFB305W	PFA111+ PFB300C
	
Pole Mount	**Pole Mount**
PFA150+PFB305W	PFA150+ PFA111+ PFB300C
	

Dimensions (mm[inch])





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