# DH-SD5A425XA-HNR

4MP 25x Starlight + IR PTZ AI Network Camera

NEGO+ 02 62 81 47 05

- 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<br>B/W: 0.0001Lux@F1.6<br>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<br>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)<br>Sub stream 1: D1/CIF(1–25/30fps)<br>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<br>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<br>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<br>Chrome 42 and older versions<br>Firefox 52 and older versions<br>Safari |
| Management Software | Smart Player / Smart PSS / DSS / Easy4ip |
| Smart Phone | IOS/Android |

### Electrical

| | |
|---|---|
| Power Supply | AC24V/3A±25%<br>POE+ |
| Power Consumption | 11W<br>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);<br>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

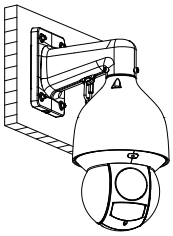
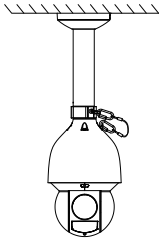
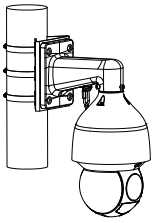
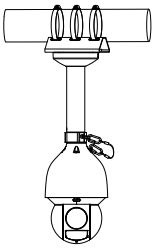
AC24V/3A
Power Adapter

### Optional:

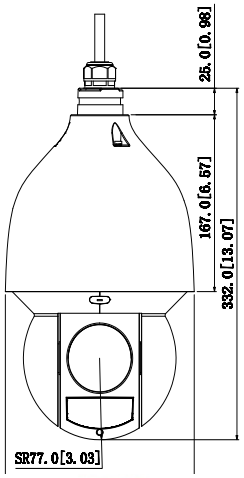
PFA111
Mount Adapter

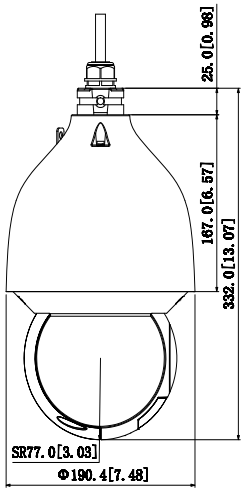
PFB300C
Bracket

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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