

# DH-SD5A425GA-HNR

4MP 25x Starlight IR WizSense Network PTZ Camera



**WizSense**

Launched by Dahua Technology, WizSense is a series of AI products and solutions that adopt independent AI chip and deep learning algorithm. It focuses on human and vehicle with high accuracy, enabling users to fast act on defined targets. Based on Dahua's advanced technologies, WizSense provides intelligent, simple and inclusive products and solutions.

## System Overview

Unique and elegant, the black semicircular sphere discreetly monitors from a distance without drawing undue attention to itself. It has a powerful optical zoom, and accurate pan, tilt and zoom capabilities, providing an all-in-one solution for long distance video surveillance of outdoor scenes. Together with infrared illumination and Starlight Technology, the camera is a great solution for dark, low light conditions. The series combines a day and night mechanical IR cut filter to produce high quality images in variable lighting conditions during the day, and True WDR for locations with direct sunlight and glare.

## Functions

### Perimeter Protection

Automatically filters out false alarms caused by animals, rustling leaves, bright lights, and more, and uses secondary recognition during target detection to improve alarm accuracy.

### Starlight+ Technology

For challenging low-light conditions, Dahua's Starlight Ultra-low Light Technology offers the best in light sensitivity, capturing color in vivid detail, even in lighting as low as 0.001 lux. The camera uses a set of optical features to balance light throughout the scene, producing clear images in dark environments.

### PFA Technology

PFA technology has introduced new methods of judgment that ensure the accuracy and predictability of the direction of subject distance adjustment. The result is a set of advanced focusing algorithms that ensure image clarity when zooming and that shorten focus time. This makes the camera highly advanced in its functions, substantially improving the quality of your experience.

- 1/1.8" 4Megapixel CMOS.
- Powerful 25x optical zoom.
- Starlight+ Technology.
- Max. 25/30fps@4MP.
- IR distance up to 150 m.
- Deep-learning-based perimeter protection.
- Auto Tracking 3.0.
- SMD 4.0.
- PoE+.
- IP67, IK10.



## Interoperability

The camera conforms to ONVIF (Open Network Video Interface Forum) specifications, ensuring interoperability between network video products regardless of the manufacturer.

## Wide Dynamic Range

The camera produces vivid images, even in high-contrast lighting conditions, by using industry-leading wide dynamic range (WDR) technology. For scenes that quickly alternate between bright and low lighting, WDR adjusts to fully capture both the bright and dark areas of a scene, producing superior quality videos.

## 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, a flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality videos without straining the network. Smart H.265+ technology outranks standard H.265 video compression, reducing bit rate and storage requirements by up to 70%.

## Auto Tracking

This feature controls the pan, tilt and zoom actions of the camera to automatically track an object in motion, to keep it in view of the camera. Tracking 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.

## SMD 4.0

Dahua Smart Motion Detection technology works with intelligent algorithms to classify targets that trigger motion detection alarms. It filters out objects that are not targets, such as small and large animals, to avoid triggering false alarms. With an AI NVR, Quick Pick technology becomes available, allowing you to easily search for and pick out human and vehicle targets from SMD event videos, prioritizing the highest matches.

## Technical Specification

### Camera

|                            |                                                                      |
|----------------------------|----------------------------------------------------------------------|
| Image Sensor               | 1/1.8" CMOS                                                          |
| Pixel                      | 4 MP                                                                 |
| Max. Resolution            | 2560(H) × 1440(V)                                                    |
| ROM                        | 4 GB                                                                 |
| RAM                        | 1 GB                                                                 |
| Electronic Shutter Speed   | 1 s–1/30,000 s                                                       |
| Scanning System            | Progressive                                                          |
| Min. Illumination          | Color: 0.001 lux@F1.6<br>B/W: 0.0001 lux@F1.6<br>0 lux (IR light on) |
| Illumination Distance      | 150 m (492.13 ft) (IR)                                               |
| Illuminator On/Off Control | Zoom Prio; Manual; Auto; Off                                         |
| Illuminator Number         | 4 (IR)                                                               |

### Lens

|                      |                                         |                       |                       |                      |
|----------------------|-----------------------------------------|-----------------------|-----------------------|----------------------|
| Focal Length         | 5.4 mm–135 mm                           |                       |                       |                      |
| Max. Aperture        | F1.6–F4.0                               |                       |                       |                      |
| Field of View        | H: 61.6°–3.6°; V: 35.7°–2°; D: 66.6°–4° |                       |                       |                      |
| Optical Zoom         | 25×                                     |                       |                       |                      |
| Focus Control        | Auto; semi-auto; manual                 |                       |                       |                      |
| Close Focus Distance | 0.1 m–2 m                               |                       |                       |                      |
| Iris Control         | Auto; manual; fixed                     |                       |                       |                      |
| DORI Distance        | Detect                                  | Observe               | Recognize             | Identify             |
|                      | 1724 m<br>(5656.16 ft)                  | 689 m<br>(2260.05 ft) | 344 m<br>(1128.61 ft) | 172 m<br>(564.30 ft) |

### PTZ

|                      |                                                               |
|----------------------|---------------------------------------------------------------|
| Pan/Tilt Range       | Pan: 0° to 360° endless<br>Tilt: –15° to +90°, auto flip 180° |
| Manual Control Speed | Pan: 0.1°/s–300°/s<br>Tilt: 0.1°/s–140°/s                     |
| Preset Speed         | Pan: 400°/s; Tilt: 300°/s                                     |
| Preset               | 300                                                           |
| Tour                 | 8 (up to 32 presets per tour)                                 |
| Pattern              | 5                                                             |
| Scan                 | 5                                                             |
| Power-off Memory     | Yes                                                           |
| Idle Motion          | Pattern; Preset; Scan; Tour                                   |
| PTZ Protocol         | DH-SD Pelco-P/D (Auto recognition)                            |

### Intelligence

|                            |                                                                                                                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IVS (Perimeter Protection) | Tripwire; intrusion; climbing fences; loitering detection; abandoned/missing object; fast moving; parking detection; people gathering; vehicle/human alarm classification; linkage tracking |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Face Detection

Supports face detection, face bounding box, capturing snapshots, uploading face snapshots, enhancing face images, and selecting a preferred image among a group of snapshots. Attribute Extraction is also supported, where 6 attributes and 8 expressions can be detected. The attributes are gender, age, glasses, mask, mustache and expressions. The expressions are angry, sad, hate, scared, surprised, calm, happy and confused. Face cutout is also offered, where you can cutout one face at a time and customize the size to be a one-inch photo. The supported methods for capturing snapshots are real-time capturing, quality first, and selecting a preferred image among a group of snapshots.

### Video Metadata

Detects motor and non-motor vehicles, faces and human bodies. It also performs tracking, takes snapshots, uploads high-quality face images and optimizes images. It extracts attributes from motor vehicles, detecting up to 10 attributes for them.

### People Counting

Uses advanced image processing technology to extract depth information from images. The extracted information is then processed by advanced, deep learning algorithms to analyze and detect human bodies, and track targets in real time. The camera provides statistics for separate individuals' entrance and exit with up to 95% counting accuracy.

### Auto Tracking

Yes

### SMD

SMD 4.0

### Auto Patrol

It triggers the IVS rule when a target is detected and makes the camera link with the PTZ to rotate to the position of the target and patrol based on its presets.

### Acupick

Uses deep learning algorithms and works with back-end devices to accurately match targets, such as people and motor vehicles, and search through live and recorded videos to quickly locate targets.

### Video

|                          |                                                                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video Compression        | H.265; H.264B; H.264; H.264H; MJPEG(Sub Stream 1); smart H.265+; smart H.264+                                                                                       |
| Streaming Capability     | 3 streams                                                                                                                                                           |
| Resolution               | 4M (2560 × 1440); 3M (2048 × 1536); 1080p (1920 × 1080); 960p (1920 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); CIF (352 × 288/352 × 240); VGA (640 × 480) |
| Video Frame Rate         | Main stream: 4M/3M/1080p/1.3M/720p (1–25/30 fps)<br>Sub stream 1: D1/CIF/VGA(1–25/30 fps)<br>Sub stream 2: 1080p/1.3M/720p (1–25/30 fps)                            |
| Bit Rate Control         | CBR/VBR                                                                                                                                                             |
| Video Bit Rate           | H.264: 96 kbps–14848 kbps<br>H.265: 38 kbps–8960 kbps                                                                                                               |
| Day/Night                | Auto (ICR)/Color/B/W                                                                                                                                                |
| BLC                      | Yes                                                                                                                                                                 |
| WDR                      | 120 dB                                                                                                                                                              |
| HLC                      | Yes                                                                                                                                                                 |
| White Balance            | Auto; indoor; outdoor; tracking; manual; sodium lamp; natural light; street lamp                                                                                    |
| Gain Control             | Auto; manual                                                                                                                                                        |
| Noise Reduction          | 2D NR; 3D NR                                                                                                                                                        |
| Motion Detection         | Yes                                                                                                                                                                 |
| Region of Interest (RoI) | Yes                                                                                                                                                                 |

|                     |                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------|
| Image Stabilization | Electronic(EIS)                                                                              |
| Defog               | Electronic                                                                                   |
| Digital Zoom        | 16×                                                                                          |
| Image Rotation      | 180°                                                                                         |
| Privacy Masking     | Up to 24 areas can be set, with up to 8 areas in the same view;<br>multiple colors available |
| S/N Ratio           | ≥ 55 dB                                                                                      |

## Audio

|                   |                                                               |
|-------------------|---------------------------------------------------------------|
| Audio Compression | PCM; G.711a; G.711Mu; G.726; MPEG2-Layer2; G722.1; G729; G723 |
|-------------------|---------------------------------------------------------------|

## Network

|                     |                                                                                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Network Port        | RJ-45 (10/100 Base-T)                                                                                                                   |
| Network Protocol    | FTP;RTMP;IPv6;Bonjour;IPv4;DNS;RTCP;PPPoE;NTP;RT P;802.1x;HTTPS;SNMP;TCP/IP;DDNS;UPnP;NFS;ICMP;UDP;IGMP;HTTP;SSL;DHCP;SMTP;Qos;RTSP;ARP |
| Interoperability    | ONVIF (Profile S&G&T); CGI; SDK                                                                                                         |
| Streaming Method    | Unicast/Multicast                                                                                                                       |
| User/Host           | 20 (total bandwidth: 64 M)                                                                                                              |
| Storage             | Micro SD card (512 GB); FTP/SFTP; NAS                                                                                                   |
| Browser             | IE 9 and later versions<br>Chrome 41 and later versions<br>Firefox 50 and later versions<br>Safari 10 and later versions                |
| Management Software | DSS; DMSS; Easy4ip; Smart PSS; IVSS                                                                                                     |
| Mobile Client       | iOS; Android                                                                                                                            |

## Certification

|                |                                                                                                                 |
|----------------|-----------------------------------------------------------------------------------------------------------------|
| Certifications | CE: EN55032/EN55024/EN50130-4<br>FCC: Part15 subpartB, ANSI C63.4-2014<br>UL:UL60950-1+CAN/CSA C22.2,No.60950-1 |
|----------------|-----------------------------------------------------------------------------------------------------------------|

## Port

|               |                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Audio Input   | 1 channel (LINE IN, bare wire)                                                                                                                            |
| Audio Output  | 1 channel (LINE OUT, bare wire)                                                                                                                           |
| Alarm Linkage | Capture; recordings; send email; preset; tour; pattern; alarm digital input                                                                               |
| Alarm Event   | Motion/tampering detection; audio detection; network disconnection detection; IP conflict detection; memory card status detection; memory space detection |
| Alarm I/O     | 2/1                                                                                                                                                       |
| Audio I/O     | 1/1                                                                                                                                                       |

## Power

|                   |                                                 |
|-------------------|-------------------------------------------------|
| Power Supply      | 24 VDC/2.5 A ± 25%<br>PoE+ (802.3at)            |
| Power Consumption | Basic: 12W<br>Max: 21W(IR light+PTZ+Heater+Fan) |

## Environment

|                       |                                      |
|-----------------------|--------------------------------------|
| Operating Temperature | −40 °C to +70 °C (−40 °F to +158 °F) |
| Operating Humidity    | ≤ 95%                                |

|                     |                                                                                        |
|---------------------|----------------------------------------------------------------------------------------|
| Storage Temperature | −40 °C to +70 °C (−40 °F to +158 °F)                                                   |
| Storage Humidity    | ≤ 95%                                                                                  |
| Protection          | IP67, IK10, TVS 6000 V lightning proof; surge protection; voltage transient protection |

## Structure

|                    |                                    |
|--------------------|------------------------------------|
| Product Dimensions | Φ190 mm × 332 mm (Φ7.48" × 13.07") |
| Net Weight         | 4.7 kg (10.36 lb)                  |
| Gross Weight       | 8.0 kg (17.64 lb)                  |

## Ordering Information

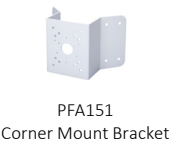
| Type                    | Model            | Description                                      |
|-------------------------|------------------|--------------------------------------------------|
| 4MP WizSense PTZ Camera | DH-SD5A425GA-HNR | 4MP 25x Starlight IR WizSense Network PTZ Camera |
|                         | SD5A425GA-HNR    | 4MP 25x Starlight IR WizSense Network PTZ Camera |
| Accessories             | PFB305W          | Wall Mount Bracket                               |
|                         | DC 24 V/2.5 A    | Power Adapter                                    |
|                         | PFA111           | Mount Adapter                                    |
|                         | PFA140           | Power Box                                        |
|                         | PFB300C          | Ceiling Mount Bracket                            |
|                         | PFA120           | Junction Box                                     |
|                         | PFA150           | Pole Mount Bracket                               |
|                         | PFA151           | Corner Mount Bracket                             |
|                         | PFB303S          | Parapet Mount Bracket                            |

Accessories

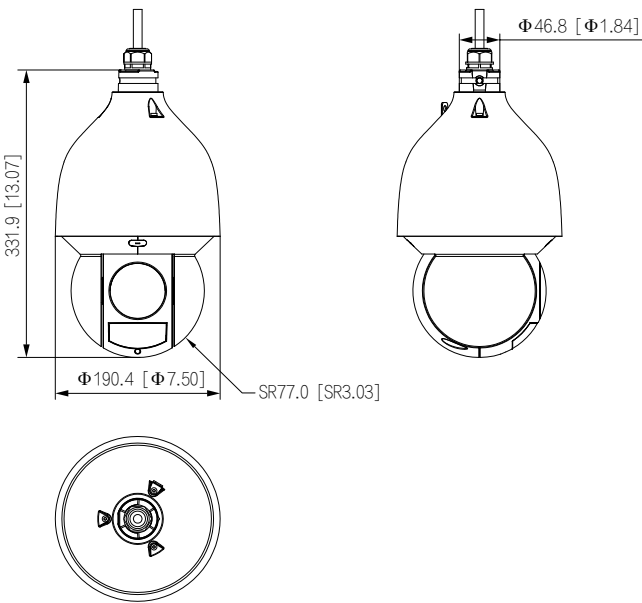
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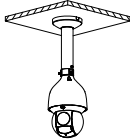
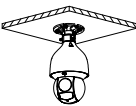
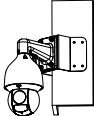
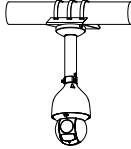


Optional:



Dimensions (mm[inch])



|                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Wall Mount<br>PFB305W+PFA120                                                        | Ceiling Mount<br>PFA111+PFB300C                                                     | Ceiling Mount<br>PFA111+PFB301C                                                     |
|  |  |  |
| Pole Mount(Vertical)<br>PFB305W+PFA150                                              | Corner Mount<br>PFB305W+PFA151                                                      | Pole Mount(Horizontal)<br>PFA111+PFB300C+PFA150                                     |
|  |  |  |