# DH-SD5A225XA-HNR-SL

## 2MP 25x Starlight IR WizSense Network PTZ Camera

- 1/2.8" 2Megapixel STARVIS™ CMOS
- Powerful 25x optical zoom
- Starlight Technology
- Max. 50/60fps@1080P
- IR distance up to 150 m
- SMD PLUS
- Deep-learning-based perimeter protection
- Auto-tracking and IVS
- PoE+
- IP67, IK10
- Anti corrosion coating

H.265 | WDR | 0.005Lux | IP67 | PoE+ | Vandal-proof

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

Dahua PTZ AI network camera adopts advanced CNN deep learning algorithms to support smart capture 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 0.005 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 effectively, sending alarms when human and vehicle intrude.

## Technical Specification

### Camera

| | |
|---|---|
| Image Sensor | 1/2.8" CMOS |
| Max. Resolution | 1920 (H) × 1080 (V) |
| Pixel | 2MP |
| ROM | 4GB |
| RAM | 1GB |
| Electronic Shutter Speed | 1/3–1/30000 s |
| Scanning System | Progressive |
| Min. Illumination | Color: 0.005Lux@F1.6<br>B/W: 0.0005Lux@F1.6<br>0Lux (IR light on) |
| Illumination Distance | 150 m (492.13 ft) |
| Illuminator On/Off Control | Zoom Prio/Manual/SmartIR/Off |
| Illuminator Number | 4 |

### Lens

| | | | | |
|---|---|---|---|---|
| Focal Length | 5.4 mm–135 mm | | | |
| Max. Aperture | F1.6-F3.5 | | | |
| Field of View | H: 58.7°–3.1°; V: 33.2°–1.7°; D: 67.3°–3.9° | | | |
| Optical Zoom | 25x | | | |
| Focus Control | Auto/Semi-Auto/Manual | | | |
| Close Focus Distance | 0.1 m–1.5 m (0.32 ft–4.92 ft) | | | |
| Iris Control | Auto/Manual | | | |
| DORI Distance | Detect | Observe | Recognize | Identify |
| | 1655 m (5429.79 ft) | 657 m (2155.51 ft) | 331 m (1085.96 ft) | 166 m (544.62 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 | 5 |
| Scan | 5 |
| Speed Adjustment | Support |
| Power-off Memory | Support |
| Idle Motion | Preset/Tour/Pattern/Scanning |
| Protocol | DH-SD<br>Pelco-P/D(Auto recognition) |

### General Intelligence

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

### Artificial Intelligence

| | |
|---|---|
| Smart Capture | Support human, motor vehicle and non-motor vehicle image capture. |
| 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 |

### Video

| | |
|---|---|
| Compression | H.265/H.265+/H.264+/H.264/MJPEG (Sub Stream) |
| Streaming Capability | 3 streams |
| Resolution | 1080P (1920 × 1080); 1.3 M (1280 × 960); 720P (1280 × 720); D1 (704 × 576/704 × 480); CIF (352 × 288/352 × 240) |
| Frame Rate | Main stream: 1080P/1.3 M/720P (1–50/60 fps)<br>Sub stream 1: D1/CIF (1–25/30 fps)<br>Sub stream 2: 1080P/1.3M/720P/D1/CIF (1–25/30 fps) |
| Bit Rate Control | Variable/Constant |
| Bit Rate | H.265/H.264: 3 kbps–20480 kbps |
| Day/Night | Auto(ICR)/Color/B/W |
| 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 |
| Image Stabilization | Electronic |
| Defog | Support |
| Digital Zoom | 16x |
| Flip | 180° |
| Privacy Masking | Up to 24 areas, and up to 8 areas in the same view |

### Audio

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

### Network

| | |
|---|---|
| Ethernet | 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&T; CGI |
| Streaming Method | Unicast/Multicast |
| User/Host | 20 (Total bandwidth 64M) |

| | |
|---|---|
| Storage | FTP; Micro SD card (256G); NAS |
| 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 |
| Mobile Phone | 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<br>IEC: 60950-22<br>IEC: 62236-4<br>IEC: 60068-2-6 |

## Port

| | |
|---|---|
| Audio Input | 1 (LINE IN; bare wire) |
| Audio Output | 1 (LINE OUT; bare wire) |
| Alarm I/O | 2/1 |

## Power

| | |
|---|---|
| Power Supply | DC24V/2.5A<br>POE+ |
| Power Consumption | 8W<br>20W (IR light on) |

## Environment

| | |
|---|---|
| Operating Temperature | –40°C to +70°C (–40°F to +158°F) |
| Operating Humidity | ≤95%RH |
| Protection | IP67; IK10; TVS 6000V lightning protection; surge protection |

## Structure

| | |
|---|---|
| Casing | Metal |
| Dimensions | Φ190 mm×332 mm (7.48"×13.07") |
| Net Weight | 4.7 kg (10.36 lb) |
| Gross Weight | 8 kg (17.64 lb) |

## Ordering Information

| Type | Model | Description |
|---|---|---|
| 2MP WizSense PTZ Camera | DH-SD5A225XA-HNR-SL | 2MP 25x Starlight IR WizSense Network PTZ Camera, PAL |
| | DH-SD5A225XAN-HNR-SL | 2MP 25x Starlight IR WizSense Network PTZ Camera, NTSC |
| | SD5A225XA-HNR-SL | 2MP 25x Starlight IR WizSense Network PTZ Camera, PAL |
| | SD5A225XAN-HNR-SL | 2MP 25x Starlight IR WizSense Network PTZ Camera, NTSC |
| Accessories | PFB305WA | Anti-corrosion Wall Mount Bracket |
| | DC24V/2.5A | Power Adapter |
| | PFA111A | Anti-corrosion Mount Bracket |
| | PFA140A | Anti-corrosion Power Box |
| | PFB300C | Ceiling Mount Bracket |
| | PFA120A | Anti-corrosion Junction Box |
| | PFA150 | Pole Mount Bracket |
| | PFA151 | Corner Mount Bracket |
| | PFB303S | Parapet Mount Bracket |

## Accessories

### Included:

PFB305WA
Anti-corrosion Wall Mount Bracket

DC24V /2.5A
Power Adapter

### Optional:

PFA111A
Anti-corrosion Wall Mount Bracket

PFA140A
Anti-corrosion Power Box

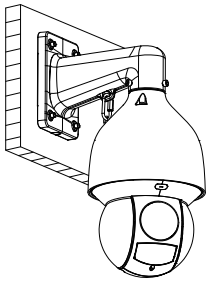
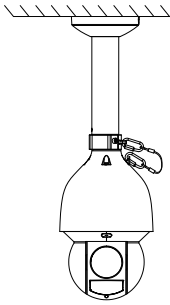
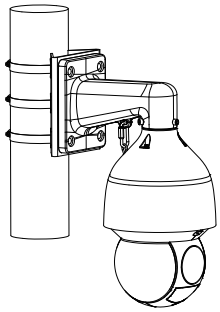
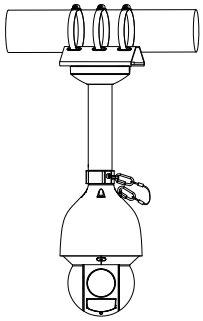
PFB300C
Ceiling Mount Bracket

PFA120A
Anti-corrosion Junction Box

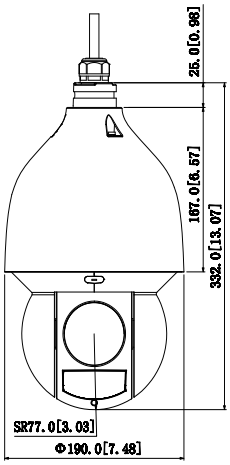
PFA150
Pole Mount Bracket

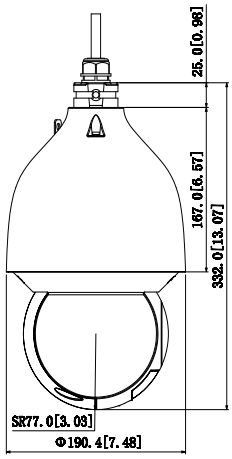
PFA151
Corner Mount Bracket

PFB303S
Parapet Mount Bracket

| Wall Mount | Ceiling Mount |
|---|---|
| PFB305W | PFA111+PFB300C |
|  |  |
| **Pole Mount(Vertical)** | **Pole Mount(Horizontal )** |
| PFA150+PFB305W | PFA150+PFA111+PFB300C |
|  |  |

## Dimensions (mm[inch])





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