

# DH-SD6E425MB-HNR-A-PV1-ATC

4MP 25× Anti-corrosion WizSense PTZ Camera



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.

## Series Overview

The Three-in-One Camera (TiOC) solution combines 24/7 monitoring, active deterrence and real-time alarms with artificial intelligence into one smart, innovative solution. TiOC PTZ cameras adopt auto-tracking 3.0 technology, greatly improving the monitoring scope of key targets. For distributors and installers, it not only saves time, but also reduces cost.

## Functions

### Smart Dual Light

Dahua Smart Dual Light technology adopts smart algorithm to detect targets. Usually, the IR illuminator is on at night; when the target appears in the monitoring area, the white light is on, and the camera records the full-color video and information of key events. That is, the camera links snapshot and video with full-color image. When the target is out of the monitoring area, the white light is off and the IR illuminator is on, which reduces light pollution efficiently.

### Face Detection

Dahua Face Detection technology can detect the face in the image. With deep learning algorithm, the technology supports detecting, tracking, capturing and selecting the best face image, and then outputs face snapshot.

### IVS

With advanced video algorithm, Dahua IVS technology supports intelligent functions, such as tripwire and intrusion.

- 1/2.8" 4Megapixel CMOS.
- 25× optical zoom.
- Max 50/60 fps@4M(2560 × 1440).
- IR distance up to 250 m.
- Xinghan Large-Scale AI Models.
- Warm light distance up to 100 m.
- Built-in dual Mic and a speaker for two-way talk.
- Sound and light alarm (red and blue lights).
- WizTracking perimeter protection.
- Face detection.
- AcuPick.
- Gyroscope EIS.
- IP67, IK10 (excluding glass window), NEMA 4X,C5-H.
- TPM2.0.



### SMD4.0

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.

### Xinghan Large-Scale AI Models-Vision

Xinghan Large-Scale AI Models-Vision seamlessly expands the storage and operational capacity of algorithmic models through the powerful integration of edge AI model algorithms and NPU computing power. Engineered with a lightweight transformer architecture and enhanced by model distillation and quantization techniques, it optimizes the computing power consumption of ViT operators. This enables the system to collaborate on multiple tasks simultaneously through joint inference between small and large models optimized for edge devices.

### AcuPick

This industry-leading search technology effectively utilizes both front-end and back-end intelligence to help with searching through massive video data to quickly and conveniently locate targets with greater precision.

### Enhanced Anti-Corrosion Aluminum Alloy

The camera is engineered with an innovative alloy structure from which impurities have been removed. Its electrochemical corrosion resistance is significantly higher than that of conventional aluminum alloys. And its dual-reinforced surface forms a dense protective barrier. Certified to C5-H and NEMA 4X standards, it is ideal for high-humidity and high-salinity environments such as ports, islands, cross sea bridges, coastal buildings, or areas prone to sulfidation, nitridation, or acid rain.

## Technical Specification

Camera

|                            |                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------|
| Image Sensor               | 1/2.8" CMOS                                                                               |
| Max. Resolution            | 2688 (H) × 1520 (V)                                                                       |
| Scanning System            | Progressive                                                                               |
| Electronic Shutter Speed   | 1s–1/30,000s                                                                              |
| Min. Illumination          | 0.005 lux@F1.6 (Color, 30 IRE)<br>0.0005 lux@F1.6 (B/W, 30 IRE)<br>0 lux (illuminator on) |
| S/N Ratio                  | >56 dB                                                                                    |
| Illumination Distance      | Up to 100 m (328.08 ft) (Warm light)<br>Up to 250 m (820.21 ft) (IR)                      |
| Illuminator On/Off Control | Auto;Manual;Zoomprio                                                                      |
| Illuminator Number         | 6 (Multi-core (IR + warm) light)                                                          |

Lens

|                      |                                             |
|----------------------|---------------------------------------------|
| Optical Zoom         | 25×                                         |
| Hybrid Zoom          | 25×                                         |
| Lens Mount           | Module                                      |
| Focal Length         | 5 mm–125 mm                                 |
| Max. Aperture        | F1.6–F3.6                                   |
| Field of View        | H: 51.9°–3.0°; V: 39.7°–2.2°; D: 63.1°–3.7° |
| Iris Control         | Auto;Manual                                 |
| Iris Control Type    | DC-Iris                                     |
| Close Focus Distance | 0.1 m–0.5 m (0.33 ft–1.64 ft)               |

|                  | Lens                                                                                                                                                                                                                                                                                                                                                                                   | Detect                    | Observe                  | Recognize                | Identify                |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------|--------------------------|-------------------------|
| DORI<br>Distance | W                                                                                                                                                                                                                                                                                                                                                                                      | 100.0 m<br>( 328.08 ft)   | 39.5 m<br>( 129.59 ft)   | 20.0 m<br>( 65.62 ft)    | 10.0 m<br>( 32.81 ft)   |
|                  | T                                                                                                                                                                                                                                                                                                                                                                                      | 2500.0 m<br>( 8202.10 ft) | 987.5 m<br>( 3239.83 ft) | 500.0 m<br>( 1640.42 ft) | 250.0 m<br>( 820.21 ft) |
|                  | <p>*DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The numbers in this table do not reflect intelligent function distances. For intelligent function distances, refer to installation and commissioning manual/project design tool.</p> |                           |                          |                          |                         |

## Intelligence

|                            |                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intelligence Notes         | Only video metadata, perimeter protection and face detection cannot be enabled at a time.                                                                                                                                                                                                                                                                                                 |
| IVS (Perimeter Protection) | Tripwire; intrusion; crossing fence detection; loitering detection; abandoned/missing object; fast moving; parking detection; people gathering; human and vehicle alarm classification; linkage tracking. Offers Perimeter Protection Large-Scale AI Models to extend the target detection range and reduce the rate of false alarm. Supports self-learning, it filters out false alarms. |
| Smart Object Detection     | Smart Abandoned Object and Smart Missing Object. By implementing Object Detection Large-Scale AI Models, it allows the camera to identify a wider range of objects.                                                                                                                                                                                                                       |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SMD            | SMD 4.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| AcuPick        | Uses deep learning algorithms and works with backend devices to accurately match targets, such as people and motor vehicles, and search through live and recorded videos to quickly locate targets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Face Detection | Face detection; snapshot; snapshot optimization; optimal face snapshot upload; face enhancement; face attributes extraction including 6 attributes and 8 expressions; face snapshot set as face or one-inch photo; snapshot strategies (real-time snapshot, quality priority and optimization snapshot)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| PPE Detection  | Detects 6 helmet colors: Red, orange, yellow, blue, white, and black. An alarm will be triggered when a person is not wearing a helmet or when the color of the helmet that they are wearing does not match the configured color. It also supports compliance detection for work uniforms. Up to 5 work uniform sample libraries can be uploaded, which together can contain up to 1,000 images (the images must be 1080p and in the JPG format). An alarm will be triggered when the similarity between the detected work uniform and the samples in the library is below the set threshold (that is, below the minimum compliance standard for work uniforms). The system supports detecting the attributes of work uniforms such as the color of the uniform, and whether or not the person is wearing a mask and wearing shoe covers. An alarm will be triggered when the target is detected as not meeting the set requirements. It also detects and triggers alarms when only one person is in the construction site, and when no one is present in the detection area such as when a worker leaves their post or an area is left unmanned. |
| Video Metadata | Motor vehicle, non-motor vehicle, face, and human body detection; snapshot; snapshot optimization; optimal face snapshot upload.<br>Extraction of motor vehicle and non-motor vehicle attributes: extracts 10 attributes for motor vehicle and 8 attributes for non-motor vehicle.<br>Extraction of face and human body attributes: extracts 6 attributes for face and 8 attributes for human body.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Video

|                      |                                                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video Compression    | Smart H.265+; H.265; Smart H.264+; H.264; H.264B; H.264H; MJPEG (Sub Stream 1)                                                                               |
| Smart Codec          | Yes                                                                                                                                                          |
| AI Coding            | Yes                                                                                                                                                          |
| Video Frame Rate     | Main stream: 4M/1080p/1.3M/720p@(1–50/60 fps)<br>Sub stream 1: D1/VGA/CIF@(1–50/60 fps)<br>Sub stream 2: 1080p/1.3M/720p/1.3M/720p@(1–50/60 fps)             |
| Streaming Capability | 3 streams                                                                                                                                                    |
| Resolution           | 4M (2688 × 1520/2560 × 1440); 3M (2304 × 1296); 1080p (1920 × 1080); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240) |
| Bit Rate Control     | VBR;CBR                                                                                                                                                      |
| Video Bit Rate       | H264: 96 kbps–15104 kbps<br>H265: 38 kbps–9216 kbps                                                                                                          |
| Day/Night            | Yes (Switchable between colorful channel and B/W channel)                                                                                                    |
| BLC                  | Yes                                                                                                                                                          |
| HLC                  | Yes                                                                                                                                                          |

|                          |                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------|
| WDR                      | 120 dB                                                                                             |
| White Balance            | Auto; indoor; outdoor; tracking; manual; sodium lamp; natural; street lamp                         |
| Gain Control             | Auto/Manual                                                                                        |
| Noise Reduction          | 2D NR; 3D NR                                                                                       |
| Motion Detection         | Yes                                                                                                |
| Region of Interest (RoI) | Yes                                                                                                |
| Image Stabilization      | Gyroscope EIS                                                                                      |
| Smart Illumination       | Yes                                                                                                |
| Smart Dual Light         | Yes                                                                                                |
| Defog                    | Electronic                                                                                         |
| Digital Zoom             | 16×                                                                                                |
| Image Rotation           | 180°                                                                                               |
| Privacy Masking          | Up to 32 areas can be set, with up to 8 areas in the same view; color block and mosaic selectable. |

## Audio

|                   |                                                                                                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------|
| Built-in MIC      | Yes, built-in dual Mic                                                                                               |
| Built-in Speaker  | Yes, built-in speaker;Max power consumption: 2 W; max sound level at 10 cm: 110 dB<br>* Test results from laboratory |
| Audio Compression | PCM; G.711a; G.711Mu; G.726; AAC; MPEG2-Layer2; G722.1; G729; G723                                                   |

## Alarm

|             |                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Event | Motion/tampering detection; audio detection; network disconnection detection; IP conflict detection; memory card state detection; memory space detection |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

## Network

|                     |                                                                                                                                                                                                                                                                                                                               |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Port        | 1 (baud rate range: 1200 bps–115200 bps)                                                                                                                                                                                                                                                                                      |
| Network Protocol    | HTTP; HTTPS; TCP/IP; IPv4; RTSP; UDP; SMTP; NTP; DHCP; DNS; DDNS; IPv6; 802.1x; SSL; QoS; FTP; UPnP; ICMP; SNMP; IGMP; ARP; RTCP; RTP; PPPoE; RTMP; Bonjour; SMB; NFS                                                                                                                                                         |
| Interoperability    | CGI; SDK; ONVIF (Profile S & Profile G & Profile T & Profile M)                                                                                                                                                                                                                                                               |
| User/Host           | 20 (total bandwidth: 64 M)                                                                                                                                                                                                                                                                                                    |
| Storage             | Micro SD card (supports max 1 TB); 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 | DMSS; DSS Pro                                                                                                                                                                                                                                                                                                                 |
| Mobile Client       | iOS;Android                                                                                                                                                                                                                                                                                                                   |
| Security            | Video encryption;Firmware encryption;Configuration encryption;Digest;WSSE;Account lockout;Security logs;IP/MAC filtering;Generation and importing of X.509 certification;syslog;HTTPS;802.1x;Trusted boot;Trusted execution;Trusted upgrade;Session security;Security warning;SSL/TLS1.2;AES 256;TPM 2.0 (FIPS 140-2 level 2) |

## Function

|                         |                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Light Warning           | Red and blue warning light<br>Flash duration: 5 s–30 s<br>Flash frequency: high, medium, low                            |
| Sound Warning           | Offers 11 sound alarms and supports importing 10 custom sound alarms. Sound: 0–100. Play times can be set from 1 to 10. |
| Heater (Window Heating) | Yes                                                                                                                     |

## PTZ

|                      |                                                               |
|----------------------|---------------------------------------------------------------|
| Pan/Tilt Range       | Pan: 0° to 360° endless<br>Tilt: –20° to +90°, auto flip 180° |
| Manual Control Speed | Pan: 0°/s–260°/s; Tilt: 0°/s–140°/s                           |
| Preset               | 300                                                           |
| Preset Speed         | Pan: 300°/s; Tilt: 200°/s                                     |
| Tour                 | 8 (up to 32 presets per tour)                                 |
| Pattern              | 5                                                             |
| Scan                 | 5                                                             |
| Power-off Memory     | Yes                                                           |
| Idle Motion          | Preset;Pattern;Tour;Scan                                      |
| PTZ Protocol         | DH-SD Pelco-P/D (Auto recognition)                            |

## Certification

|                |                                                                                          |
|----------------|------------------------------------------------------------------------------------------|
| Certifications | CE: EN55035EN IEC61000-3-2; EN55032; EN60950; EN62368-1; NEMA 4X; C5-H(ISO12944-6:2018). |
|----------------|------------------------------------------------------------------------------------------|

## Port

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| RS-485       | 1 (baud rate range: 1200 bps–115200 bps)                                                                |
| Audio Input  | 1 channel (Bare wire)                                                                                   |
| Audio Output | 1 channel (Bare wire)                                                                                   |
| Alarm Input  | 7 channels in: supports wet contact connection (max load 5 mA 3–5 VDC); supports dry contact connection |
| Alarm Output | 2 channels out: dry contact, max load 1,000 mA 30 VDC/500 mA 50 VAC                                     |

## Power

|                   |                                                                                  |
|-------------------|----------------------------------------------------------------------------------|
| Power Supply      | 24 VDC/2.5 A ± 25%<br>PoE+ (802.3at)                                             |
| Power Consumption | Basic: 16 W (24 VDC)<br>Max (WDR + IR on + PTZ operation + Alarm): 24 W (24 VDC) |

## Environment

|                           |                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------|
| Operating Temperature     | –40 °C to +70 °C (–40 °F to +158 °F)                                                               |
| Operating Humidity        | ≤95%                                                                                               |
| Protection                | IP67; IK10; NEMA4X;C5-H;TVS 6000 V lightning proof; surge protection; voltage transient protection |
| Anti-Corrosion Protection | C5-H(ISO12944-6:2018) , NEMA 4X                                                                    |

|                      |                                                                                                                                                                                                                                                                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anti-corrosion Level | <b>Professional Protection</b><br>*The products are fitted with premium-level anti-corrosion protection, making them ideal for use in sensitive environments such as chemical plants, docks, and coastlines. They perform reliably in areas up to 2 km (1.24 mi) from the coast, as well as in regions prone to acid rain exposure. |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Structure

|                    |                                                                                   |
|--------------------|-----------------------------------------------------------------------------------|
| Casing Material    | Bottom casing: Plastic; Top casing: Metal(Enhanced Anti-Corrosion Aluminum Alloy) |
| Product Dimensions | 208 mm × 202 mm × 300 mm (8.19" × 7.95" × 11.81") (L × W × H)                     |
| Net Weight         | 5.06 kg (11.16 lb)                                                                |
| Gross Weight       | 11.06 kg (24.38 lb)                                                               |

## Ordering Information

| Type               | Model                      | Description                                |
|--------------------|----------------------------|--------------------------------------------|
| Network PTZ Camera | DH-SD6E425MB-HNR-A-PV1-ATC | 4MP 25× Anti-corrosion WizSense PTZ Camera |
| Accessories        | PFB5320WH                  | Wall Mount Bracket                         |
|                    | DC24V/2.5A                 | Power Adapter                              |
|                    | DH-PFA6400SH               | Anti-corrosion Power Box                   |
|                    | DH-PFA5510H                | Anti-corrosion Pole Mount Bracket          |
|                    | PFM900-E                   | Integrated Mount Tester                    |

## Accessories

Included:



PFB5320WH  
Wall Mount Bracket



DC24V/2.5A  
Power Adapter

Optional:



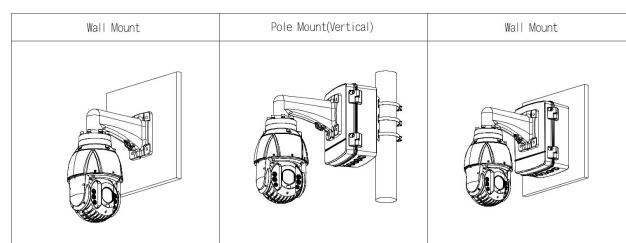
DH-PFA6400SH  
Anti-corrosion Power Box



DH-PFA5510H  
Anti-corrosion Pole Mount Bracket



PFM900-E  
Integrated Mount Tester



## Dimensions (mm[inch])

