

# DH-PSDW81652S-A360-D440

16 MP Multi-Sensor 360° Panoramic PTZ Mini Hubble WizMind Network Camera



Xinghan WizMind

Launched by Dahua Technology, Dahua WizMind is a full portfolio of solutions composed of project-oriented products including IPC, NVR, PTZ, XVR, Thermal and software platform which adopts industry-leading deep learning algorithms. Focusing on customer's requirements, WizMind provides precise, reliable and comprehensive AI solutions for verticals.

## Series Overview

The Hubble WizMind Network Camera features an integrated design and multi-sensor fusion technology, enabling it to deliver panoramic coverage and capture ultra-HD detail images. Equipped with Xinghan Large-Scale AI Models for situational analysis, the camera performs precise analytics of the crowd distribution map in large-scale scenarios. It also supports perimeter protection, vehicle density, and boat detection. Additionally, the panoramic and detail cameras can be linked to enable tracking with close-ups. This makes it ideal for use at transit stations, public squares and compounds, enhancing the speed and efficiency of incident responses while bolstering security to meet the digital management needs of government agencies and enterprises.

## Functions

### 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.

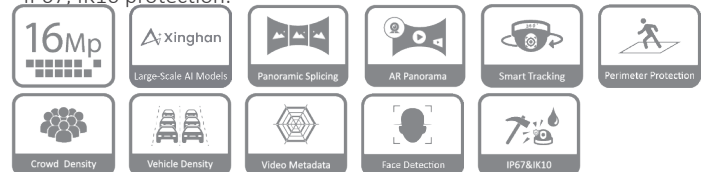
### Crowd Density

Detects the number of people and the level of crowd density within an area. It adopts the Xinghan Large-Scale AI Model-Vision technology, enabling it to identify smaller pixels than standard devices and recognize people carrying umbrellas even in low-light conditions. This greatly improves the accuracy of crowd statistics at night and in rainy scenes.

### Flexible Splicing

Seamlessly splices two or more adjacent camera sensors, effectively resolving occlusion issues in installation scenarios.

- Channel 1 (Panoramic): 8 × 2 MP 1/1.8" CMOS image sensors.
- Channel 2 (PTZ): 1 × 4 MP 1/1.8" CMOS image sensors.
- Channel 2 (PTZ): Optical Zoom: 40×, Digital Zoom: 16×.
- Channel 2 (PTZ): Gyroscope Image Stabilization (GIS);Optical defog.
- Channel 2 (PTZ): Built-in Multi-core (IR + warm) light, max. IR illumination distance: 150 m. Max. Warm light illumination distance: 100 m
- Channel 1 (Panoramic): Four switchable intelligent resources: Perimeter protection, Crowd map (Large-Scale AI Models), Vehicle density, Boat detection.
- Channel 2 (PTZ): Three switchable intelligent resources: Perimeter protection, Video metadata, Face detection.
- AR panorama technology; various AR tags can be overlaid.
- G-sensor; gradienter; flexible splicing; flexible cutting; smart tracking.
- Built-in dual Mic and dual speaker.
- Alarm: 3 in, 2 out; audio: 2 in, 1 out; 1 channel BNC, 1 channel RS-485 (baud rate can be set). supports max. 1 TB SD card.
- 1 network port (RJ-45).
- 36 VDC or PoE ++(802.3bt) power supply, 12 VDC power output, and max. current 165 mA, easy for installation.
- IP67, IK10 protection.



### AR Panorama

Dahua AR panorama technology generates wide-field of view through panoramic merging and splicing. The software overlaps the cameras as tags in the image. Click the tag to display the corresponding camera video, which makes monitoring visual and convenient, and improves command efficiency.

### Smart Tracking

With advanced algorithm, Dahua network camera can detect targets, track targets with speed dome, and view details.

### Video Metadata

With deep learning algorithm, Dahua Video Metadata technology can detect, track, capture vehicle, non-motor vehicle and people, and select the best images, and extract attributes.

### 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.

## Protection (IP67, IK10)

IP67: The camera passes a series of strict test on dust and soak. It has dust-proof function, and the enclosure can work normally after soaking in 1 m deep water for 30 minutes.

IK10: The enclosure can stand the punch more than 5 times from a 5 kg hammer falling from a height of 40 cm (Impact energy is 20J).

## Technical Specification

### Camera

|                            |                                                                                                                                                                                                              |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Image Sensor               | Channel 1 (Panoramic): 1/1.8" CMOS<br>Channel 2 (PTZ): 1/1.8" CMOS                                                                                                                                           |
| Max. Resolution            | Channel 1 (Panoramic): 8192 (H) × 1800 (V)<br>Channel 2 (PTZ): 2688 (H) × 1520 (V)                                                                                                                           |
| ROM                        | Channel 1 (Panoramic): 8 GB<br>Channel 2 (PTZ): 4 GB                                                                                                                                                         |
| RAM                        | Channel 1 (Panoramic): 4 GB<br>Channel 2 (PTZ): 2 GB                                                                                                                                                         |
| Scanning System            | Progressive                                                                                                                                                                                                  |
| Electronic Shutter Speed   | Auto/Manual 1/3 s–1/100,000 s                                                                                                                                                                                |
| Min. Illumination          | Channel 1 (Panoramic):<br>0.0005 lux@F1.0 (Color, 30 IRE)<br>0.0001 lux@F1.0 (B/W, 30 IRE)<br>Channel 2 (PTZ):<br>0.001 lux@F1.6 (Color, 30 IRE)<br>0.0001 lux @F1.6 (B/W, 30 IRE)<br>0 lux (Illuminator on) |
| S/N Ratio                  | >56 dB                                                                                                                                                                                                       |
| Illumination Distance      | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ): Up to 150 m (492.13 ft)(IR); Up to 100 m (328.09 ft)(Warm light)                                                                                               |
| Illuminator On/Off Control | Auto; Manual; Zoomprio                                                                                                                                                                                       |
| Illuminator Number         | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ): 6 (Multi-core (IR + warm) light)                                                                                                                               |
| Angle Adjustment           | Pan: 0° to 360° ;<br>Tilt: –10° to 180°, auto flip 180°                                                                                                                                                      |
| Gradienter                 | Yes                                                                                                                                                                                                          |

### Lens

|                      |                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------------------------|
| Lens Type            | Channel 1 (Panoramic): Fixed-focal<br>Channel 2 (PTZ): Vari-focal                                        |
| Lens Mount           | Channel 1 (Panoramic): M16<br>Channel 2 (PTZ): Module                                                    |
| Focal Length         | Channel 1 (Panoramic): 2.8 mm<br>Channel 2 (PTZ): 5.2 mm–210 mm                                          |
| Max. Aperture        | Channel 1 (Panoramic): F1.0<br>Channel 2 (PTZ): F1.6–F5.0                                                |
| Field of View        | Channel 1 (Panoramic): H: 360°; V: 103°;<br>Channel 2 (PTZ): H: 60.8°–2.8°; V: 35.9°–1.7°; D: 67.7°–3.3° |
| Iris Control         | Channel 1 (Panoramic): Fixed<br>Channel 2 (PTZ): Auto                                                    |
| Close Focus Distance | Channel 1 (Panoramic): 1.4 m (4.59 ft)<br>Channel 2 (PTZ): 0.5 m (1.64 ft)                               |

|               | Lens                                                                                                                                                                                                                                                                                                                                                                            | Detect                | Observe               | Recognize            | Identify            |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|----------------------|---------------------|
| DORI Distance | Channel 1 (Panoramic)                                                                                                                                                                                                                                                                                                                                                           | 57.9 m (189.96 ft)    | 23.2 m (76.11 ft)     | 11.6 m (38.06 ft)    | 5.8 m (19.03 ft)    |
|               | Channel 2 (PTZ)                                                                                                                                                                                                                                                                                                                                                                 | 2648.2 m (8688.32 ft) | 1046.1 m (3432.09 ft) | 530.0 m (1738.85 ft) | 264.8 m (868.77 ft) |
|               | *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. |                       |                       |                      |                     |

## Intelligence

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intelligence Notes         | Channel 1 (Panoramic): Perimeter protection, crowd map (Large-Scale AI Models), vehicle density, boat detection.<br>Channel 2 (PTZ): Perimeter protection, video metadata, face detection.                                                                                                                                                                                                                                                         |
| IVS (Perimeter Protection) | Channel 1 (Panoramic): Tripwire; intrusion; parking detection<br>Channel 2 (PTZ): Tripwire; intrusion; parking detection; crossing virtual fence; fast moving; abandoned object; missing object; crowd gathering; loitering detection                                                                                                                                                                                                              |
| Face Detection             | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ):<br>Face detection; snapshot; snapshot optimization; optimal face snapshot upload; face enhancement; face exposure; 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); face angle filter; optimization time setting.                             |
| Vehicle Density            | Channel 1 (Panoramic): Vehicle density; parking upper limit; traffic congestion; vehicle status alarm<br>Channel 2 (PTZ): NA                                                                                                                                                                                                                                                                                                                       |
| Crowd Distribution Map     | Channel 1 (Panoramic): Crowd map (Large-Scale AI Models), global crowd density; crowd density in area; people counting in area; crowd status<br>Channel 2 (PTZ): NA                                                                                                                                                                                                                                                                                |
| Video Metadata             | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ):<br>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 6 attributes for motor vehicle and 6 attributes for non-motor vehicle<br>Extraction of face and human body attributes: extracts 6 attributes for face and 8 attributes for human body. |
| Smart Search               | Work together with Smart NVR to perform refine intelligent search, event extraction and merging to event videos.                                                                                                                                                                                                                                                                                                                                   |

## Video

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video Compression | H.265; H.264; H.264H; H.264B; MJPEG (Only supported by the sub stream)                                                                                                                                                                                                                                                                                                                                                                              |
| Smart Codec       | Smart H.264+; Smart H.265+                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Video Frame Rate  | Channel 1 (Panoramic):<br>Main stream: 8192 × 1800@(1–25/30 fps)<br>sub stream: 2048 × 452@(1–25/30 fps)<br>third stream: 3840 × 832@(1–25/30 fps)<br>Channel 2 (PTZ):<br>Main stream: 2688 × 1520@(1–25/30 fps)<br>sub stream: 704 × 480@(1–25/30 fps)<br>third stream: 1920 × 1080@(1–25/30 fps)<br>*The values above are the max. frame rates of each stream; for multiple streams, the values will be subjected to the total encoding capacity. |

|                          |                                                                                                                                                                                                                                                          |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Streaming Capability     | 3 streams                                                                                                                                                                                                                                                |
| Resolution               | Channel 1 (Panoramic):<br>8192 × 1800; 7680 × 1680; 5760 × 1264; 4096 × 900;<br>2048 × 452; 3840 × 832; 2560 × 560<br>Channel 2 (PTZ):<br>2688 × 1520; 2560 × 1440; 2304 × 1296; 1920 × 1080;<br>1280 × 960; 1280 × 720; 704 × 480; 640 × 480; 352 × 240 |
| Bit Rate Control         | VBR; CBR                                                                                                                                                                                                                                                 |
| Video Bit Rate           | Channel 1 (Panoramic):<br>H.264: 96 kbps–32768 kbps<br>H.265: 38 kbps–25692 kbps<br>Channel 2 (PTZ):<br>H.264: 32 kbps–16384 kbps<br>H.265: 12 kbps–11008 kbps                                                                                           |
| Day/Night                | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ): ICR                                                                                                                                                                                                        |
| BLC                      | Yes                                                                                                                                                                                                                                                      |
| HLC                      | Yes                                                                                                                                                                                                                                                      |
| WDR                      | Channel 1 (Panoramic): DWDR<br>Channel 2 (PTZ): 120 dB                                                                                                                                                                                                   |
| White Balance            | Auto; natural; street lamp; outdoor; manual; regional custom                                                                                                                                                                                             |
| Gain Control             | Manual; Auto                                                                                                                                                                                                                                             |
| Noise Reduction          | 3D NR                                                                                                                                                                                                                                                    |
| Motion Detection         | OFF/ON (4 areas, rectangular)                                                                                                                                                                                                                            |
| Region of Interest (RoI) | Channel 1 (Panoramic): Yes (4 areas)<br>Channel 2 (PTZ): Yes (8 areas)                                                                                                                                                                                   |
| Image Stabilization      | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ): Gyroscope Image Stabilization (GIS)                                                                                                                                                                        |
| Defog                    | Channel 1 (Panoramic): NA<br>Channel 2 (PTZ): Optical defog                                                                                                                                                                                              |
| Privacy Masking          | Channel 1 (Panoramic): 4 areas (rectangle)<br>Channel 2 (PTZ): 24 areas (8 for each preset) (polygon)                                                                                                                                                    |

## Audio

|                   |                                                       |
|-------------------|-------------------------------------------------------|
| Built-in MIC      | Yes, built-in dual Mic                                |
| Built-in Speaker  | Yes, built-in dual speaker                            |
| Audio Compression | PCM; G.711a; G.711Mu; G.726; G.723, G.711a by default |

## Alarm

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Event | Channel 1 (Panoramic):<br>External alarm; No SD card; SD card full; SD card error;<br>network disconnection; IP conflict; illegal access;<br>voltage detection; motion detection; video tampering;<br>scene changing; audio detection; intensity change;<br>tripwire; intrusion; parking detection; crowd density;<br>traffic congestion; parking upper limit;<br>Channel 2 (PTZ):<br>Tripwire; intrusion; parking detection; crossing virtual fence; fast moving; abandoned object; missing object;<br>crowd gathering; loitering detection; face detection;<br>video metadata |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Network

|              |                            |
|--------------|----------------------------|
| Network Port | RJ-45 (10/100/1000 Base-T) |
| SDK and API  | Yes                        |

|                     |                                                                                                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Protocol    | IPv4; IPv6; HTTP; TCP; UDP; ARP; RTP; RTSP; RTCP; RTMP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; QoS; UPnP; NTP; Multicast; ICMP; IGMP; NFS; SAMBA; PPPoE; SNMP; P2P                            |
| Security            | WSSE; Account lockout; Trusted execution; Generation and importing of X.509 certification; 802.1x; Security logs; Digest; IP/MAC filtering; HTTPS; Trusted upgrade; syslog; Trusted boot |
| Interoperability    | ONVIF (Profile S/Profile G/Profile T); CGI                                                                                                                                               |
| User/Host           | 20 (Total bandwidth: 400 M)                                                                                                                                                              |
| Storage             | FTP; SFTP; Micro SD card (support max. 1 TB); NAS; SMB                                                                                                                                   |
| Browser             | IE: IE11; Chrome; Firefox                                                                                                                                                                |
| Management Software | DSS Pro                                                                                                                                                                                  |

## Function

|             |     |
|-------------|-----|
| AR Function | Yes |
|-------------|-----|

## PTZ

|                      |                                                               |
|----------------------|---------------------------------------------------------------|
| Pan/Tilt Range       | Pan: 0° to 360° endless<br>Tilt: –10° to 180°, auto flip 180° |
| Manual Control Speed | Pan: 0°/s–360°/s<br>Tilt: 0°/s–150°/s                         |
| Preset               | 300                                                           |
| Preset Speed         | Pan: 0°/s–360°/s<br>Tilt: 0°/s–150°/s                         |
| Tour                 | 8 (up to 32 presets per tour)                                 |
| Pattern              | 5                                                             |
| Scan                 | 5                                                             |
| Power-off Memory     | Yes                                                           |
| Idle Motion          | Tour;Preset; Pattern; Scan                                    |

## Certification

|                |                                                                                  |
|----------------|----------------------------------------------------------------------------------|
| Certifications | CE-LVD: EN62368-1;<br>CE-EMC: Electromagnetic Compatibility Directive 2014/30/EU |
|----------------|----------------------------------------------------------------------------------|

## Port

|               |                                                               |
|---------------|---------------------------------------------------------------|
| RS-485        | 1 (baud rate range: 1200 bps–115200 bps)                      |
| Audio Input   | 2 channels (terminal)                                         |
| Audio Output  | 1 channel (terminal)                                          |
| Alarm Input   | 3 channels in: wet contact, 5 mA 3–5 VDC                      |
| Alarm Output  | 2 channels out: dry contact, 1,000 mA 30 VDC/500 mA 50 VAC    |
| Analog Output | 1 channel (CVBS output: BNC)                                  |
| Power Output  | 12 VDC power output, max. current 165 mA, peak current 700 mA |

## Power

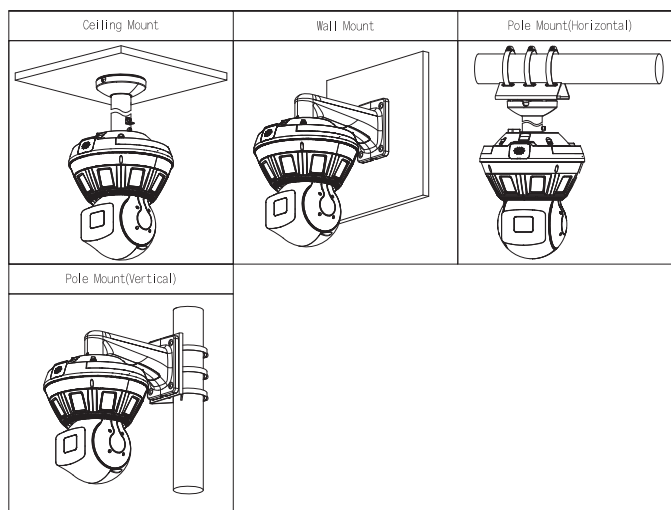
|                   |                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply      | 36 VDC (±50%); PoE++ (802.3bt)                                                                                                             |
| Power Consumption | Basic: 26.4 W (36 VDC);<br>Max.: 67.8 W (36 VDC) (Basic power consumption + WDR + intelligence on +Speaker+Heater+ LED on + PTZ operation) |

## 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                           |

## Structure

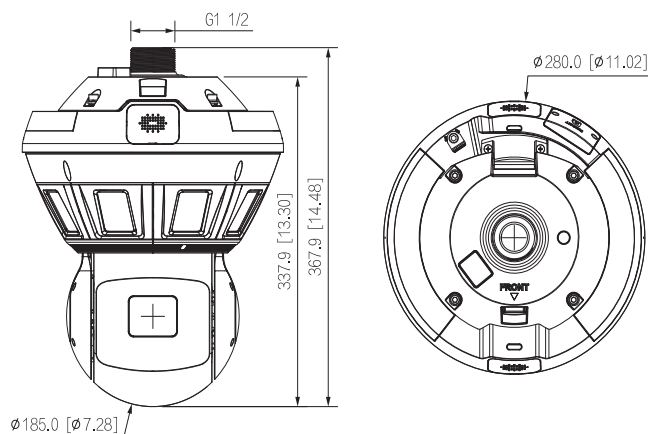
|                    |                                         |
|--------------------|-----------------------------------------|
| Casing Material    | Metal + plastic                         |
| Product Dimensions | Φ280.0 mm × 368.0 mm (Φ11.02" × 14.49") |
| Net Weight         | 8.8 kg (19.40 lb)                       |
| Gross Weight       | 12.2 kg (26.90 lb)                      |



## Ordering Information

| Type        | Part Number             | Description                                                              |
|-------------|-------------------------|--------------------------------------------------------------------------|
| 16MP Camera | DH-PSDW81652S-A360-D440 | 16 MP Multi-Sensor 360° Panoramic PTZ Mini Hubble WizMind Network Camera |
| Accessories | ADS-180EL-36-1 360180E  | 36 VDC 5 A Power Adapter                                                 |
|             | PFB300C-S               | Ceiling Mount Bracket                                                    |
|             | PFB5307W-SG             | Wall Mount Bracket                                                       |
|             | PFA5500-SG              | Pole Mount Bracket                                                       |
|             | TF-P100                 | MicroSD Memory Card                                                      |

## Dimensions (mm[inch])



## Accessories

Included:



ADS-180EL-36-1  
360180E  
36 VDC 5 A Power  
Adapter

Optional:



PFB300C-S  
Ceiling Mount Bracket



PFB5307W-SG  
Wall Mount Bracket



PFA5500-SG  
Pole Mount Bracket



TF-P100  
MicroSD  
Memory Card