

# DH-IPC-HFW5859T1-ASE-PV-PRO

8MP WizColor Fixed-focal Bullet WizMind Network Camera



Launched by Dahua Technology, Dahua WizMind is a full portfolio of solutions composed of project-oriented products including IPC, IVSS, 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

With its deep learning algorithms, the WizMind 5 Series camera offers advanced analytical capabilities for both audio and video. It integrates intelligent features such as video metadata, AcuPick, face detection, perimeter protection, and people counting. Powered by the Xinghan Large-Scale AI Models-Vision, the camera outstandingly delivers on its object detection, recognition, and scene adaptation functions. Equipped with AI-ISP imaging technology, it offers excellent night vision performance. The series is designed for durability, being dust-proof, waterproof, and vandal-proof, in compliance with IP67 and IK10 standards, though support for these certifications may vary across models.

## 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.

### Self-Learning

Empowered by deep learning technology, the device recognizes different types of targets and their statuses through learning and analyzing target features to detect targets and filter out false alarms.

- 8-MP 1/1.8" CMOS image sensor, low luminance, and high definition image.
- Outputs max. 8 MP (3840 × 2160) @25/30 fps.
- Built-in multi-core light, the max. IR distance is 80 m and the max. warm light distance is 60 m.
- ROI, SVC, SMART H.264+/H.265+, AI H.264/H.265, encoding after filter, flexible coding, applicable to various bandwidth and storage environments.
- Rotation mode, WDR, 3D NR, HLC, BLC, digital watermarking, applicable to various monitoring scenes.
- Features AI Rule Assist, which automatically creates highly accurate IVS rules based on the Xinghan Vision Models
- With deep learning algorithm, it supports: AcuPick, video metadata, IVS, face detection, Smart Object Detection, and people counting, etc.
- Alarm: 1 in, 1 out; audio: 1 in, 1 out; RS-485; supports max. 1 TB Micro SD card; built-in dual Mic; 1-ch speaker; support two-way talk.
- 12 VDC/PoE power supply; ePoE; 12 VDC power output, and max. current 165mA, easy for installation.
- IP67 and IK10 protection.



## WizColor Technology

Dahua WizColor Technology seamlessly combines with the powerful AI-ISP, large pixel size sensor and large aperture in cameras. This unique integration enables cameras to effortlessly capture high-quality images with vibrant colors during nighttime scenarios, ensuring fine details are preserved and minimizing motion blur. Unlike traditional self-illuminating cameras, Dahua WizColor Technology maximizes the utilization of weak light sources, such as moonlight and city lights reflected in the sky, delivering captivating full-color images of the entire scene. It also ensures that monitoring distances are not compromised at night due to limited illumination ranges, facilitating full-color image capture even over long distances.

## 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.

## Protection (IP67, IK10, Wide Voltage)

**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). **Wide voltage:** The camera allows ±30% (for some power supplies) input voltage tolerance (wide voltage range), and it is widely applied to outdoor environment with instable voltage.

## Technical Specification

### Camera

|                            |                                                                                          |
|----------------------------|------------------------------------------------------------------------------------------|
| Image Sensor               | 1/1.8" CMOS                                                                              |
| Max. Resolution            | 3840 (H) × 2160 (V)                                                                      |
| ROM                        | 4 GB                                                                                     |
| RAM                        | 2 GB                                                                                     |
| Scanning System            | Progressive                                                                              |
| Electronic Shutter Speed   | Auto/Manual 1/3 s–1/100,000 s                                                            |
| Min. Illumination          | 0.0004 lux@F1.0 (Color, 30IRE)<br>0.0002 lux@F1.0 (B/W, 30IRE)<br>0 lux (Illuminator on) |
| S/N Ratio                  | >56 dB                                                                                   |
| Illumination Distance      | Up to 80 m (262.47 ft) (IR)<br>Up to 60 m (196.85 ft) (Warm light)                       |
| Illuminator On/Off Control | Auto; Manual                                                                             |
| Illuminator Number         | 4 (Multi-core (IR + warm) light)                                                         |
| Angle Adjustment           | Pan: 0°–360°<br>Tilt: 0°–90°<br>Rotation: 0°–360°                                        |

### Lens

|                      |                                                                     |
|----------------------|---------------------------------------------------------------------|
| Lens Type            | Fixed-focal                                                         |
| Lens Mount           | M16                                                                 |
| Focal Length         | 2.8 mm; 3.6 mm                                                      |
| Max. Aperture        | F1.0                                                                |
| Field of View        | 2.8 mm: H: 109°; V: 59°; D: 131°<br>3.6 mm: H: 93°; V: 50°; D: 111° |
| Iris Control         | Fixed                                                               |
| Close Focus Distance | 2.8 mm: 3.2 m (10.50 ft)<br>3.6 mm: 4.4 m (14.44 ft)                |

|               | Lens                                                                                                                                                                                                                                                                                                                                                                            | Detect                  | Observe                | Recognize             | Identify              |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------|-----------------------|-----------------------|
| DORI Distance | 2.8 mm                                                                                                                                                                                                                                                                                                                                                                          | 82.0 m<br>( 269.03 ft)  | 32.8 m<br>( 107.64 ft) | 16.4 m<br>( 53.81 ft) | 8.2 m<br>( 26.90 ft)  |
|               | 3.6 mm                                                                                                                                                                                                                                                                                                                                                                          | 100.0 m<br>( 328.08 ft) | 40.0 m<br>( 131.23 ft) | 20.0 m<br>( 65.62 ft) | 10.0 m<br>( 32.81 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

|                            |                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPTZ                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                      |
| IVS (Perimeter Protection) | Intrusion, tripwire, fast moving (the three functions support the classification and accurate detection of vehicle, animal, human, and Other); loitering detection, people gathering, parking detection, stay detection. 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. With Smart Object Detection Large-Scale AI Models, a wider range of objects is supported.                                                                                                                                                                                                                                                               |

|                 |                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SMD             | SMD 4.0                                                                                                                                                                                                                                                                                                                                                                                            |
| AcuPick         | Uses deep learning algorithms and works with back-end devices to accurately match targets, such as people, animal and motor vehicles, and search through live and recorded videos to quickly locate targets.                                                                                                                                                                                       |
| AI SSA          | Yes                                                                                                                                                                                                                                                                                                                                                                                                |
| Face Detection  | 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, one-inch photo or custom; snapshot strategies (real-time snapshot, quality priority and optimization snapshot); face angle filter; optimization time setting.                      |
| People Counting | Tripwire people counting, generating and exporting report (day/week/month/year); people counting in area and queue management, generating and exporting report (day/week/month); 4 rules can be set for tripwire, people counting in area and queue management.                                                                                                                                    |
| Heat Map        | Yes                                                                                                                                                                                                                                                                                                                                                                                                |
| 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 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)                                                                                                                                                                                                                                                                                     |
| AI Coding            | AI H.265; AI H.264<br>*Includes smart codec technology, Smart H.265+ and Smart H.264+.                                                                                                                                                                                                                                                                     |
| Video Frame Rate     | Main stream: 3840 × 2160@(1 fps–25/30 fps)<br>Sub stream: 704 × 576@(1 fps–25 fps)/704 × 480@(1 fps–30 fps)<br>Third stream: 1920 × 1080@(1 fps–25/30 fps)<br>Fourth stream: 1280 × 720@(1 fps–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 | 4 streams                                                                                                                                                                                                                                                                                                                                                  |
| Resolution           | 8M (3840 × 2160); 6M (3072 × 2048/3200 × 1800); 5M (3072 × 1728/2592 × 1944/2960 × 1668); 4M (2688 × 1520/2560 × 1440); 3M (2048 × 1536/2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)                                                                      |
| Bit Rate Control     | VBR; CBR                                                                                                                                                                                                                                                                                                                                                   |
| Video Bit Rate       | H.264: 3 kbps–16384 kbps<br>H.265: 3 kbps–16384 kbps                                                                                                                                                                                                                                                                                                       |
| Day/Night            | Auto(ICR)/Color/B/W                                                                                                                                                                                                                                                                                                                                        |
| BLC                  | Yes                                                                                                                                                                                                                                                                                                                                                        |
| HLC                  | Yes                                                                                                                                                                                                                                                                                                                                                        |
| WDR                  | 130 dB                                                                                                                                                                                                                                                                                                                                                     |

|                             |                                                                                |
|-----------------------------|--------------------------------------------------------------------------------|
| Scene Self-adaptation (SSA) | Yes                                                                            |
| White Balance               | Auto; natural; street lamp; outdoor; manual; regional custom                   |
| Gain Control                | Auto/Manual                                                                    |
| Noise Reduction             | 3D NR                                                                          |
| Motion Detection            | OFF/ON (4 areas, rectangular)                                                  |
| Region of Interest (RoI)    | Yes (4 areas)                                                                  |
| Smart Illumination          | Yes                                                                            |
| Smart Dual Light            | Yes                                                                            |
| Defog                       | Yes                                                                            |
| Image Rotation              | 0°/90°/180°/270° (Support 90°/270° with 4M (2688 × 1520) resolution and lower) |
| Mirror                      | Yes                                                                            |
| Privacy Masking             | 4 mosaics or 8 color blocks                                                    |
| LDC                         | Yes                                                                            |

## Audio

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

## Alarm

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Event | No SD card; SD card full; SD card error; network disconnection; IP conflict; illegal access; motion detection; video tampering; tripwire; intrusion; fast moving; abandoned object; missing object; loitering detection; people gathering; parking detection; scene changing; audio detection; voltage detection; external alarm; face detection; video metadata; SMD; people counting in area; stay detection; people counting; people number error detection; queue people number alarm; queue time alarm; security exception |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Network

|                     |                                                                                                                                                                                                                                                           |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Port        | RJ-45 (10/100 Enhancement 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; Auto Registration                                                                          |
| Interoperability    | ONVIF (Profile S & Profile G & Profile T & Profile M); CGI                                                                                                                                                                                                |
| User/Host           | 20 (Total bandwidth: 80 M)                                                                                                                                                                                                                                |
| Storage             | FTP; SFTP; Micro SD card (support max. 1 TB); NAS                                                                                                                                                                                                         |
| Browser             | IE: IE 11 and later<br>Chrome: Chrome 102 and later<br>Firefox: Firefox 88 and later                                                                                                                                                                      |
| Management Software | DSS; DMSS; DoLynk Care                                                                                                                                                                                                                                    |
| Mobile Client       | iOS; Android                                                                                                                                                                                                                                              |
| Security            | 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; TLS 1.3; TPM 2.0 (optional) |

## Function

|               |                                                                                                                              |
|---------------|------------------------------------------------------------------------------------------------------------------------------|
| Light Warning | Warm light warning<br>Flash/Solid on duration: 5 s–30 s<br>Flash frequency: high, medium, low                                |
| Sound Warning | Offers 11 sound alarms and supports importing 10 custom sound alarms.<br>Sound: 0–100<br>Play times can be set from 1 to 10. |

## 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  | 1 channel (RCA port)                                          |
| Audio Output | 1 channel (RCA port)                                          |
| Alarm Input  | 1 channel in: wet contact, 5 mA 3–5 VDC                       |
| Alarm Output | 1 channel out: dry contact, 1,000 mA 30 VDC/500 mA 50 VAC     |
| Power Output | 12 VDC power output, max. current 165 mA, peak current 700 mA |

## Power

|                   |                                                                                                                                                |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply      | 12 VDC (±30%); PoE+ (802.3at); ePoE                                                                                                            |
| Dual Power Backup | When the power adapter and PoE provide power at the same time, disconnect one of them. The device will continue to work, but will not restart. |
| Power Consumption | Basic: 4.1 W (12 VDC); 4.8 W (PoE)<br>Max (IR on + WDR + intelligence on + siren and light active deterrence): 21.6 W (12 VDC); 24.2 W (PoE)   |
| ePoE              | Yes                                                                                                                                            |

## Environment

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | –40 °C to +60 °C (–40 °F to +140 °F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Operating Humidity    | ≤95% (RH), non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Storage Temperature   | –40 °C to +60 °C (–40 °F to +140 °F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Storage Humidity      | ≤95% (RH), non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Protection            | IP67; IK10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Anti-corrosion Level  | Basic Protection<br>*Basic Protection: The products are designed for general use in areas that have no specific requirements for anti-corrosion protection.<br>*Moderate Protection: The products feature high-grade anti-corrosion protection, making them well-suited for environments with standard corrosion resistance requirements. 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.<br>*Professional Protection: 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. |

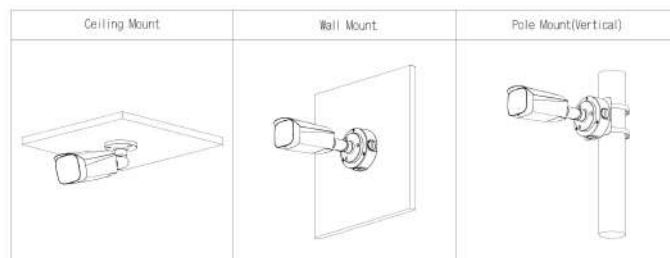
## Structure

|                    |                                       |
|--------------------|---------------------------------------|
| Casing Material    | Metal + plastic                       |
| Product Dimensions | 127.6 mm × Φ122.0 mm (5.02" × Φ4.80") |

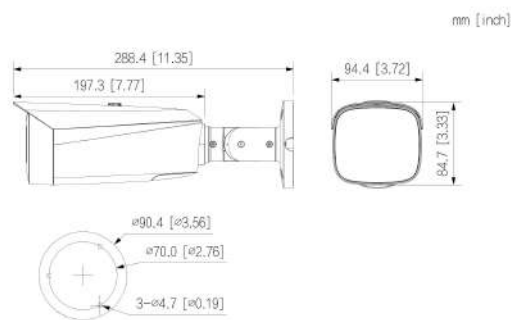
|              |                   |
|--------------|-------------------|
| Net Weight   | 1.09 kg (2.40 lb) |
| Gross Weight | 1.39 kg (3.06 lb) |

## Ordering Information

| Type                   | Model                       | Description                                            |
|------------------------|-----------------------------|--------------------------------------------------------|
| IP CAMERA              | DH-IPC-HFW5859T1-ASE-PV-PRO | 8MP WizColor Fixed-focal Bullet WizMind Network Camera |
| Accessories (Optional) | G3416GW                     | G3/4" Water Joint                                      |
|                        | DH-PFA151                   | Corner Mount Bracket                                   |
|                        | DH-PFA130-E                 | Water-proof Junction Box                               |
|                        | DH-PFA152-E                 | Pole Mount Bracket                                     |
|                        | DH-PFA135                   | Junction Box                                           |
|                        | DH-PFM320D-EN               | DC12V2A power adapter                                  |
|                        | PFM900-E                    | Integrated Mount Tester                                |
|                        | DHI-TF-P100/1TB             | MicroSD Card                                           |



## Dimensions (mm[inch])



## Accessories

Optional:



DH-PFA130-E  
Water-proof Junction Box



DH-PFA135  
Junction Box



DH-PFA151  
Corner Mount Bracket



DH-PFA152-E  
Pole Mount Bracket



DH-PFM320D-EN  
DC12V2A power adapter



DHI-TF-P100/1TB  
MicroSD Card



G3416GW  
G3/4" Water Joint



PFM900-E  
Integrated Mount Tester