# DH-IPC-HFW3649T1-AS-PV-PRO

6MP WizColor TiOC PRO Fixed-focal Bullet WizSense Network 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

Dahua WizSense 3 Series Network Camera greatly saves on bandwidth and storage space through its AI Coding technology. Driven by its advanced deep learning algorithms, the camera supports intelligent functions such as perimeter protection, smart motion detection (SMD), AcuPick, and AI SSA (AI Scene Self-adaptation), making it easy and convenient to use. Starlight technology and its large aperture lens also allow the camera to produce clear, vivid images even in poor lighting conditions.

## 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.

- 1/1.8" CMOS image sensor, low luminance, and high definition image.
- Outputs max. 6 MP (3288 ×1850)@25/30 fps.
- H.265 codec, high compression rate, ultra-low bit rate.
- Built-in multi-core light, the max. IR distance is 60 m and the max. warm light distance is 50 m.
- ROI, Super AI Coding (H.265/H.264), flexible coding, applicable to various bandwidth and storage environments.
- Rotation mode, WDR, 3D NR, HLC, BLC, digital watermarking, applicable to various monitoring scenes.
- Intelligent monitoring: Intrusion, tripwire (the two function support the classification and accurate detection of vehicle and human), stay detection, loitering detection; face detection (full image).
- Abnormality detection: Motion detection, privacy masking, scene changing, audio detection, no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, and voltage detection.
- Alarm: 1 in, 1 out; audio: 1 in, 1 out; supports max. 512 G Micro SD card; built-in dual Mic; 1-ch speaker; support two-way talk.
- 12 VDC/PoE power supply.
- IP67 protection.
- Sound and light alarm (red and blue lights).
- SMD 4.0.
- Supports AI SSA and one-tap arming and disarming.
- SMD area can be set in warm light areas that support triggering alarms.




### Perimeter Protection

With deep learning algorithm, Dahua Perimeter Protection technology can recognize human and vehicle accurately. In restricted area (such as pedestrian area and vehicle area), the false alarms of intelligent detection based on target type (such as tripwire, intrusion, fast moving, parking detection, loitering detection and gathering detection) are largely reduced.

### 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.

### Super AI Coding

With advanced AI object detection and scene recognition technology, Super AI Coding integrates ROI, BAE, and DFE to achieve higher encoding efficiency than H.265 and H.264 while effectively reducing storage and transmission costs without compromising video quality.

### Protection (IP67, 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.

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 | 3288 (H) × 1850 (V) |
| Scanning System | Progressive |
| Electronic Shutter Speed | Auto/Manual 1/3 s–1/100,000 s |
| Min. Illumination | 0.0002 lux@F1.0 (Color, 30 IRE)<br>0.0001 lux@F1.0 (B/W, 30 IRE)<br>0 lux (Illuminator on) |
| S/N Ratio | > 56 dB |
| Illumination Distance | 2.8 mm: Up to 40 m (131.23 ft) (IR);<br>Up to 40 m (131.23 ft) (Warm light)<br>3.6 mm: Up to 60 m (196.85 ft) (IR)<br>Up to 50 m (164.04 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) |

| DORI Distance | Lens | Detect | Observe | Recognize | Identify |
|---|---|---|---|---|---|
| | 2.8 mm | 70.2 m | 28.1 m | 14.0 m | 7.0 m |
| | 3.6 mm | 85.6 m ( 280.84 ft) | 34.3 m ( 112.53 ft) | 17.1 m ( 56.10 ft) | 8.6 m ( 28.22 ft) |
| DORI Distance | *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

| | |
|---|---|
| IVS (Perimeter Protection) | Intrusion, tripwire (the two functions support the classification and accurate detection of vehicle and human), stay detection, loitering detection. Offers Perimeter Protection Large-Scale AI Models to extend the target detection range and reduce the rate of false alarm. |
| SMD | SMD 4.0 |
| AcuPick | Uses deep learning algorithms and works with back-end devices to accurately match targets, such as people and motor vehicles, and search through live and recorded videos to quickly locate targets. |
| AI SSA | Adopt deep learning algorithms to adjust the parameters of the image to suit the conditions. |
| Face Detection (Full Image) | Face detection; snapshot; snapshot optimization; optimal face snapshot upload; face enhancement; 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. |
| 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 sub stream) |
| AI Coding | Super AI Coding (H.265); Super AI Coding (H.264)<br>*Includes smart codec technology, Smart H.265+ and Smart H.264+ |
| Video Frame Rate | Main stream: 3288 × 1850@(1–25/30 fps)<br>sub stream: 1920 × 1080@(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 | 6M (3288 × 1850/3200 × 1800); 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;ABR |
| 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 | Manual;Auto |
| 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 2688 × 1520 resolution and lower) |
| Mirror | Yes |
| Privacy Masking | 8 areas |
| LDC | Yes |

## 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; 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; stay detection; loitering detection; face detection (full image); scene changing; audio detection; voltage detection; external alarm; SMD; security exception |

## Network

| | |
|---|---|
| Network Port | RJ-45 (10/100 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 |
| Interoperability | ONVIF (Profile S & Profile G & Profile T); CGI |
| User/Host | 20 (Total bandwidth: 64 M) |
| Storage | FTP; SFTP; Micro SD card (support max. 512 GB); NAS |
| Browser | IE: IE11;<br>Chrome;<br>Firefox |
| Management Software | Smart PSS Lite; 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 |

## Certification

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

## Port

| | |
|---|---|
| Audio Input | 1 channel (RCA port) |
| Audio Output | 1 channel (RCA port) |
| Alarm Input | 1 channel in: supports wet contact connection (max load 5 mA 3–5 VDC); supports dry contact connection |
| Alarm Output | 1 channel out: wet contact, max load 300 mA 12 VDC |

## Power

| | |
|---|---|
| Power Supply | 12 VDC (±30%); PoE+ (802.3at) |
| Power Consumption | Basic: 4.3 W (12 VDC), 6.2 W (PoE);<br>Max.: 11.8 W (12 VDC), 15.1 W (PoE) (H.265 + WDR + warm light + siren and light active deterrence + intelligence on) |

## 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 |
| Anti-corrosion Level | Basic Protection<br>*The products are designed for general use and are applicable even in areas with no specific requirements for anti-corrosion protection. |

## Structure

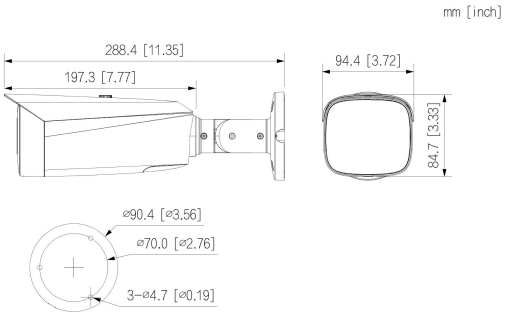
| | |
|---|---|
| Casing Material | Metal + plastic |
| Product Dimensions | 288.4 mm × 94.4 mm × 84.7 mm (11.35" × 3.72" × 3.33") (L × W × H) |
| Net Weight | 1.0 kg (2.20 lb) |
| Gross Weight | 1.3 kg (2.87 lb) |

## Ordering Information

| Type | Model | Description |
|---|---|---|
| IP CAMERA | DH-IPC-HFW3649T1-AS-PV-PRO | 6MP WizColor TiOC PRO Fixed-focal Bullet WizSense Network Camera |

| Type | Model | Description |
|---|---|---|
| Accessories (Optional) | G3416GW | G3/4" Water Joint |
| | DH-PFA130-E | Water-proof Junction Box |
| | DH-PFA151 | Corner Mount Bracket |
| | DH-PFA152-E | Pole Mount Bracket |
| | DH-PFA135 | Junction Box |
| | DH-PFM320-020EN | DC12V 2A Power Adapter |
| | DH-PFM320D-EN | DC12V 2A Power Adapter |
| | PFM900-E | Integrated Mount Tester |
| | DHI-TF-P100/512GB | MicroSD Card |

## Dimensions (mm[inch])




## Accessories

Optional:



G3416GW
G3/4" Water Joint



DH-PFA130-E
Water-proof Junction Box



DH-PFA151
Corner Mount Bracket



DH-PFA152-E
Pole Mount Bracket



DH-PFA135
Junction Box



DH-PFM320-020EN
DC12V 2A Power Adapter



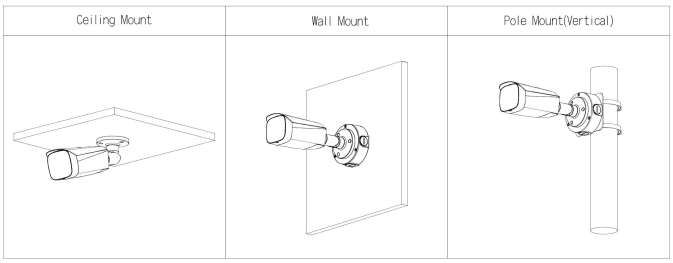
DH-PFM320D-EN
DC12V 2A Power Adapter



PFM900-E
Integrated Mount Tester



DHI-TF-P100/512GB
MicroSD Card




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