System Overview

With advanced chip, image sensor and deep learning algorithm, Dahua Ultra-AI Series network camera supports various intelligent functions and meets customers' requirements in different scenes. Adopting excellent image processing technology, Dahua AI network camera performs well in WDR and low illuminance environment. For intelligent functions, it supports face detection, people counting, perimeter protection, video metadata (vehicle, non-motor vehicle, person detection and snapshot). The camera provides better solution to image processing and intelligent application.

Functions

People Counting
People counting adopts deep learning algorithm to detect human body target, and tracks the target in real time, which realizes independent statistics of entry number and exit number. And the accuracy rate is up to 98%.

Video Structurization
Video metadata adopts deep learning algorithm to detect vehicle, non-motor vehicle and people in the image, track the target in real time, and then capture the target and extract attributes.

Ultra WDR
Standard WDR/HDR camera can provide 120 dB dynamic range. However, for some scenes with wider contrast range, 120 dB is slightly insufficient. By adopting the latest technology, Dahua Cameras can provide an amazing dynamic range up to 140 dB.

Smart H.265+
Smart H.265+ is an effective coding method based on H.265. Comparing with H.265, smart H.265+ improves efficiency more than 70% through auto scene judgement, dynamic ROI and dynamic GOP. Smart H.265+ provides better solution to save storage, bandwidth and power consumption.

EPOE
Dahua ePoE technology, designed internally, adopts advanced 2D-PAM3 coding modulation from physical layer, and realizes full duplex transmission over 800 meters at the speed of 10 Mbps, or 300 meters at the speed of 100 Mbps via Cat 5 or coaxial cable media. Besides, it supports PoE and PoC power supply technology which has greatly simplified construction and wiring. Dahua ePoE technology offer a new way to accomplish long distance transmission between IP camera and network switch. It allows more flexible surveillance system design, improves reliability and saves construction and wiring cost.

Face Recognition
Once facial features are extracted from captured faces, they are stored in a database where they can be easily searched and compared against other images. Once a successful match is found, the system outputs the result. The Dahua Face Recognition camera supports a built-in database that stores up to 200,000 facial images, helping the camera achieve real-time face capture and comparison.

Perimeter Protection
Dahua’s Perimeter Protection functions significantly improved accuracy. Perimeter Protection reduces false alarms and decreases pixel count requirements for object detection. Perimeter Protection features custom tripwires based on object type for automation in limited access areas such as pedestrian or vehicle-only zones. This combination of advanced AI analytics and real-time alerts to a desktop or to a mobile client reduces system requirements and resources resulting in greater surveillance system efficiency.
## Technical Specification

### Camera
- **Image Sensor**: 1/1.8” 4Megapixel progressive CMOS
- **Effective Pixels**: 2688 (H) × 1520 (V)
- **ROM**: 16 GB
- **RAM**: 2 GB
- **Scanning System**: Progressive
- **Electronic Shutter Speed**: Auto/Manual 1/3 s–1/100000 s
- **Min. Illumination**: 0.001 Lux@F1.6 (Color, 1/3 s, 30IRE)
- **Distance**: Distance up to 120m (393.70 ft)
- **IR Distance**: 4 (IR LEDs)
- **Horizontal: 0°–360°**
- **Vertical: 0°–90°**
- **Rotation: 0°–360°**
- **Focus Distance**: W: 2.5 m (8.20 ft) T: 6 m (19.69 ft)
- **DORI Distance**: W: 151 m (495.4 ft) T: 400 m (1312.34 ft)

### Lens
- **Type**: Electric zoom
- **Mount Type**: Module interface
- **Focal Length**: 8 mm–32 mm
- **Max. Aperture**: F1.6
- **Field of View**: Horizontal: 40° (W)–15° (T) Vertical: 23° (W)–9° (T) Diagonal: 46° (W)–18° (T)
- **Optical Zoom**: 4 times
- **Iris Type**: Auto aperture
- **Close Focus Distance**: W: 2.5 m (8.20 ft) T: 6 m (19.69 ft)

### Smart event
- **General IVS Analytics**: Abandoned object, moving object
- **Professional, intelligent**: Tripwire, intrusion (Recognition of vehicle and people), fast moving, loitering detection, parking detection and people gathering.
- **Face Recognition**: Face recognition, track, priority, snapshot, face enhancement, face exposure, face attribute extract, 6 attributes and 8 expressions: Gender, age, glasses, expressions (anger, sadness, disgust, fear, surprise, calm, happiness and confusion), mask, beard
- **Defog**: Yes
- **Image Rotation**: 0°/90°/180°/270° (Supports 90°/270° with 1080p resolution or below.)
- **Mirror**: Yes
- **Privacy Masking**: 4 areas
- **Audio**: G.711a, G.711Mu, G726, AAC

### Video Structurization
- **Vehicle detection**, non-motor vehicle detection, personnel detection, face detection, track, snapshot, optimization, report high quality picture, vehicle attributes (license plate, vehicle type, vehicle color, and vehicle brand), other attributes (sun visor, seatbelt, smoking, phoning, in-car accessories, and annual vehicle inspection mark), non-motor vehicle attributes: vehicle type, vehicle color, driver number, cloth type, cloth color, and hat), personnel attribute (cloth type, trousers type, cloth color, trousers color, knapsack, and gender), face attribute (gender, age, glasses, mask, and beard)
- **People Counting**: People counting (count the entry number, exit number and pass number), display and output daily/monthly/annual statistics, No. in area
- **Intelligent Search**: Work together with Smart NVR to perform refine intelligent search, event extraction and merging to event videos.

### Video
- **Compression**: H.265, H.264, H.264H, H.264B, MJPEG
- **Smart Codec**: H.264: Yes H.265: Yes
- **Frame Rate**: Main Stream: 2688 × 1520 (1–50/60 fps) sub stream 1: 704 × 576 (1–25/30 fps)
- **Bit Rate Control**: CBR/VBR
- **Bit Rate Control**: 32–10240 kbps
- **Gain Control**: Manual
- **Noise Reduction**: 3D DNR
- **Region of Interest(Roi)**: Yes (4 areas)
- **Electronic Image Stabilization(EIS)**: Yes
- **Smart IR**: Yes (Adjust by user)
- **Defog**: Yes
- **Image Rotation**: 0°/90°/180°/270° (Supports 90°/270° with 1080p resolution or below.)
- **Mirror**: Yes
- **Privacy Masking**: 4 areas
- **Audio**: G.711a, G.711Mu, G726, AAC
## Network
- **Network**: RJ-45 (100/1000 Base-T)

## Protocol
- **HTTP, TCP, ARP, RTSP, RTP, UDP, RTCP, SMTP, FTP, DHCP, DNS, DDNS, P2P, RTMP**

## Interoperability
- ONVIF (Profile S/Profile G); CGI; P2P; RTMP

## Scene self-adaptation
- Yes

## User/Host
- 20

## Edge Storage
- FTP; Micro SD card (256 G); NAS; SFTP

## Browser
- IE: Versions later than IE9
- Google: Versions later than Chrome 42
- Firefox: Versions later than Firefox 48.0.2

## Management Software
- Smart PSS, DSS PRO, NVR, IVSS

## Mobile Phone
- iOS, Android

## Certification
- **CE-LVD**: EN60950-1
- **CE-EMC**: Electromagnetic Compatibility Directive 2014/30/EU
- **FCC**: 47 CFR FCC Part 15, Subpart B
- **UL/CUL**: UL60950-1 CAN/CSA C22.2 No.60950-1-07

## Port
- **RS-485**: 1 (Bit rate: 1200 bps–115200 bps)

## Audio Input
- Audio Interface: 1/1 channel In/Out

## Audio Output
- Alarm Input: 3 channel In: 5mA 5V DC
- Alarm Output: 2 channel Out: 1000mA 30V DC/500mA 50V AC

## Power
- **Power Supply**: 12V DC/24V AC/POE
- **Power Consumption**: <17.3W

## Environment
- **Operating Temperature**: -40°C to +60°C (-40°F to +140°F)
- **Operating Humidity**: ≤95%
- **Storage Temperature**: -40°C to +60°C (-40°F to +140°F)
- **Ingress Protection**: IP67, IK10

## Structure
- **Casing**: Metal + Plastic
- **Dimensions**: 340.1 mm × 108.5 mm × 92.9 mm (13.39" × 4.27" × 3.66") (L × W × H)
- **Net Weight**: 1.6 kg (3.53 lb)
- **Gross Weight**: 2.4 kg (5.29 lb)

## Ordering Information
<table>
<thead>
<tr>
<th>Type</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4MP Camera</td>
<td>DH-IPC-HFW7442HP-Z4FR</td>
<td>4MP AI IR Bullet Network Camera</td>
</tr>
<tr>
<td></td>
<td>IPC-HFW7442HN-Z4FR</td>
<td>4MP AI IR Bullet Network Camera</td>
</tr>
<tr>
<td>Accessories (optional)</td>
<td>PFA154</td>
<td>Pole Mount</td>
</tr>
</tbody>
</table>

## Accessories
- **Optional:**
  - PFA154
    - Pole Mount

## Dimensions (mm/inch)

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