AI PTZ Introduces
AI series products adopt the most advanced AI technologies, including deep learning algorithms that primarily target people and vehicles, which provides higher flexibility and accuracy for end-users. This enables the Dahua AI series to offer various advanced applications such as Face Recognition, ANPR, Metadata, People Counting, traffic data statistics, etc. The complete lineup of Dahua AI includes network (PTZ) cameras, network video recorders, servers, and more devices. Beyond seeing the world, the power of AI allows devices to perceive the environment and understand the world in a better way.

System Overview
Featuring powerful optical zoom and accurate pan/tilt/zoom performance, this camera can provide large monitoring range and great detail. The camera has very excellent low light performance due to adopting the latest starlight technology. The camera is equipped with smooth control, high quality image and good protection, which make it can meet most of the requirements of video surveillance applications.

Functions
Perimeter Protection
Automatically filtering out false alarms caused by animals, rustling leaves, bright lights, etc. Enables system to act secondary recognition for the targets. Improving alarm accuracy.

Starlight Technology
For challenging low-light applications, Dahua’s Starlight Ultra-low Light Technology offers best-in-class light sensitivity, capturing color details in low light down to 0.005 lux. The camera uses a set of optical features to balance light throughout the scene, resulting in clear images in dark environments.

PFA Technology
PFA technology has innovatively introduced new methods of judgment to ensure the accuracy and predictability of the direction of subject distance adjustment. The result is a set of advanced focusing algorithms. PFA ensures clarity of the image throughout the process of zooming and shortens focus time. The realization of PFA technology substantially improves user experience and increases product value.

Environmental
Dahua cameras operate in extreme temperature environments, rated for use in temperatures from -40 °C to +70 °C (-40 °F to +158 °F) with 95% humidity. Subjected to rigorous dust and water immersion tests and certified to the IP67 Ingress Protection rating makes it suitable for demanding outdoor applications.

Wide Dynamic Range
The camera achieves vivid images, even in the most intense contrast lighting conditions, using industry-leading wide dynamic range (WDR) technology. For applications with both bright and low lighting conditions that change quickly, True WDR (120 dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

Auto-tracking
This feature controls the pan/tilt/zoom actions of the camera to automatically track an object in motion and to keep it in the scene. The tracking action can be triggered manually or automatically by defined rules. Once a rule is triggered, the camera can zoom in and track the defined target automatically.

Smart H.265+
Smart H.265+ is the optimized implementation of the H.265 codec that uses a scene-adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality video without straining the network. Smart H.265+ technology reduces bit rate and storage requirements by up to 70% when compared to standard H.265 video compression.
### Technical Specification

#### Camera
- **Image Sensor**: 1/2.8" STARVIS™ CMOS
- **Max. Resolution**: 4MP
- **Effective Pixels**: 2560 (H)×1440 (V)
- **ROM**: 4GB
- **RAM**: 1GB
- **Electronic Shutter Speed**: 1/3–1/30000s
- **Scanning Mode**: Progressive Scanning
- **Minimum Illumination**:  
  - Color: 0.005Lux@F1.6  
  - B/W: 0.0005Lux@F1.6  
  - 0Lux (IR light on)
- **IR Distance**: 150 m (492.13 ft)
- **IR On/Off Control**: Zoom Prio/Manual/SmartIR
- **IR LED Number**: 4
- **Lens**
  - **Focal Length**: 3.95 mm–177.7 mm
  - **Aperture**: F1.6–F4.95
  - **Field of View**:  
    - H: 70.3°–1.8°; V: 37°–1°; D: 69.3°–2°
  - **Optical Zoom**: 45x
  - **Focus Control**: Auto/Semi-Auto/Manual
  - **Close Focus Distance**: 0.01 m–3 m
  - **Iris Control**: Auto/Manual
  - **DORI Distance**:  
    - Detect: 3176 m (10419.95 ft)
    - Observe: 1270 m (4166.67 ft)
    - Recognize: 635 m (2083.33 ft)
    - Identify: 317 m (1040.03 ft)

#### PTZ
- **Pan/Tilt Range**: Pan: 0°–360°; Tilt: -15°–+90°
- **Manual Control Speed**: Pan: 0.1°–300°/s; Tilt: 0.1°–200°/s
- **Preset Speed**: Pan: 400°/s; Tilt: 300°/s
- **Presets**: 300
- **Tour**: 8 (up to 32 preset per tour)
- **Pattern Number**: 5
- **Scanning Number**: 5
- **Speed Adjustment**: Support
- **Power-off Memory**: Support
- **Idle Motion**: Preset/Tour/Pattern/Scanning
- **Protocol**: DH-SD Pelco-P/D (Auto recognition)

#### Artificial Intelligence
- **Perimeter Protection**: Tripwire and intrusion. Support alarm triggering by target types (human and vehicle). Support filtering false alarms caused by animals, rustling leaves, bright lights, etc.
- **Auto Tracking**: Support
- **Video Structuralization**: Support human, motor vehicle and non-motor vehicle image capture

#### General Intelligence
- **Event Trigger**: Motion detection, video tampering, scene changing, Network disconnection, IP address conflict, illegal access, and storage anomaly.

#### Video
- **Compression**: H.265/H.265+/H.264+/H.264/MJPEG (Sub Stream)
- **Streaming Capability**: 3 Streams
- **Resolution**:  
  - Main stream: 3M (2560×1440); 1080P (1920×1080); 720P (1280×720); D1 (704×576/704×480); CIF (352×288/352×240)
  - Sub stream 1: D1/CIF (1–25/30fps)
  - Sub stream 2: 1080P/1.3M/720P (1–25/30fps)
- **Frame Rate**:  
  - Main stream: 4M/3M (1–25/30fps), 1080P/1.3M/720P (1–25/30fps)
  - Sub stream 1: D1/CIF (1–25/30fps)
  - Sub stream 2: 1080P/1.3M/720P (1–25/30fps)
- **Bit Rate Control**: Variable Bit Rate/Constant Bit Rate
- **Bit Rate**: H.264: 32 Kbps–8192 Kbps
  - H.265: 32 Kbps–8192 Kbps
- **Day/Night**: Support
- **BLC**: Support
- **WDR**: 120dB
- **HLC**: Support
- **White Balance**: Auto/Indoor/Outdoor/Tracking/Manual/Sodium lamp/Natural/Street lamp
- **Gain Control**: Auto/Manual
- **Noise Reduction**: 2D/3D
- **Motion Detection**: Support
- **Region of Interest (RoI)**: Support
- **Electronic Image Stabilization (EIS)**: Support
- **Optical Defog**: Electronic Defog
- **Digital Zoom**: 16x
- **Flip**: 0°/180°
- **Privacy Masking**: Up to 24 areas

#### Certifications
- **Certification**:  
  - CE: EN55032/EN55024/EN50130-4
  - FCC: Part15 subpartB,ANSI C63.4- 2014

#### Audio
- **Audio Compression**: G.711A; G.711Mu; G.726; AAC; G.722.1; G.723; G.729; PCM; MPEG2-Layer2

#### Port
- **Audio In**: 1 (LINE IN; bare wire)
- **Audio Out**: 1 (LINE OUT; bare wire)
- **Alarm Port**: 2 alarm input port; 1 alarm output port
### Network

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet Port</td>
<td>1 RJ-45 Port 10/100Base-T</td>
</tr>
<tr>
<td>Protocol</td>
<td>IPv4; IPv6; HTTP; HTTPS; B0.2.1x; Qos; FTP; SMTP;</td>
</tr>
<tr>
<td></td>
<td>UPnP; SNMPv3/v2c/v3(MIB-2); DNS; DDNS; NTP; RTSP;</td>
</tr>
<tr>
<td></td>
<td>RTP; TCP; UDP; IGMP; ICMP; DHCP; PPPoe; ARP; RTCP</td>
</tr>
<tr>
<td>Interoperability</td>
<td>ONVIF Profile S&amp;G; CGI</td>
</tr>
<tr>
<td>Streaming Method</td>
<td>Unicast/Multicast</td>
</tr>
<tr>
<td>Max. User Access</td>
<td>20 (Total bandwidth 48M)</td>
</tr>
<tr>
<td>Edge Storage</td>
<td>FTP; Micro SD card (256G); P2P</td>
</tr>
<tr>
<td>Browser</td>
<td>IE7 and newer versions</td>
</tr>
<tr>
<td></td>
<td>Chrome 42 and older versions</td>
</tr>
<tr>
<td></td>
<td>Firefox 52 and older versions</td>
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<tr>
<td></td>
<td>Safari</td>
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<tr>
<td>Management Software</td>
<td>Smart Player</td>
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<td></td>
<td>Smart PSS</td>
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<td></td>
<td>Easy4ip</td>
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<tr>
<td>Smart Phone</td>
<td>IOS/Android/Windows Phone</td>
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</tbody>
</table>

### Electrical

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>AC24V/3A±25% PoE+(B0.2.3at)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>11W</td>
</tr>
<tr>
<td></td>
<td>20W (IR light on)</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Conditions</td>
<td>–40°C to +70°C (~40°F to +158°F)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>≤95%RH</td>
</tr>
<tr>
<td>Ingress Protection</td>
<td>IP67; IK10; TVS 6000V lightning protection; surge protection</td>
</tr>
</tbody>
</table>

### Construction

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Φ190 mm×332 mm (7.48&quot;×13.07&quot;)</td>
</tr>
<tr>
<td>Weight</td>
<td>Net Weight: 4.7 kg (10.36 lb); Gross Weight: 8 kg (17.64 lb)</td>
</tr>
<tr>
<td>Casing</td>
<td>Metal</td>
</tr>
</tbody>
</table>

### Ordering Information

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4M Camera</td>
<td>DH-SD5A445XA-HNR</td>
<td>4MP 45x Starlight IR PTZ Network Camera, PAL</td>
</tr>
<tr>
<td></td>
<td>DH-SD5A445XAN-HNR</td>
<td>4MP 45x Starlight IR PTZ Network Camera, NTSC</td>
</tr>
<tr>
<td></td>
<td>SD5A445XA-HNR</td>
<td>4MP 45x Starlight IR PTZ Network Camera, PAL</td>
</tr>
<tr>
<td></td>
<td>SD5A445XAN-HNR</td>
<td>4MP 45x Starlight IR PTZ Network Camera, NTSC</td>
</tr>
</tbody>
</table>

### Accessories

#### Included:
- PFB305W Wall Mount
- AC24V/3A Power Adapter

#### Optional:
- PFA111 Mount Adapter
- PFA140 Power Box
- PFB300C Ceiling Mount
- PFA120 Junction Box
- PFA150 Pole Mount
- PFA151 Corner Mount
- PFB303S Parapet Mount

### Wall Mount
- PFB305W
- PFA111+ PFB300C

### Pole Mount
- PFA150+PFB305W
- PFA150+ PFA111+ PFB300C