System Overview

The 4 MP Starlight PTZ Dome camera features offers Analytics+ functions at the edge – performing complex real-time perimeter protection surveillance. The Dahua Analytics+ algorithms significantly improve accuracy and reliability as compared to standard intelligent features. The camera features a 1/2.8-in. CMOS STARVIS™ imager with a 45x optical zoom lens, and provides an all-in-one solution for capturing long-distance video surveillance for outdoor applications. The camera uses the H.265 video compression standard to improve encoding efficiency while preserving high-quality video. The PTZ camera is equipped with quick and accurate pan/tilt/zoom control and True WDR for applications with direct sunlight or glare.

Functions

Perimeter Protection
Dahua Analytics+ includes Tripwire and Intrusion functions that offer custom tripwires based on object type for automation in limited access areas. Perimeter Protection requires less pixels to detect an object to deliver improved accuracy and decreased false alarms due to lights, weather, trees, or animals.

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.

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.

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.

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.

Interoperability
The camera conforms to the ONVIF (Open Network Video Interface Forum) ensuring interoperability between network video products regardless of manufacturer.

Environmental
With a built-in heater and a temperature range of –40° C to +60° C (–40°F to 140°F), the camera is designed for extreme temperature environments. The camera complies with the IK10 Vandal Resistance impact rating making it capable of withstanding the equivalent of 5 kg (11.02 lbs) of force dropped from a height of 40 cm (15.75 in.). Subjected to rigorous dust and water immersion tests and certified to the IP67 Ingress Protection rating makes it suitable for demanding outdoor applications.
**Technical Specification**

**Camera**
- **Image Sensor**: 1/2.8-in. STARVIS™ CMOS
- **Effective Pixels**: 2560(H) x 1440(V), 4 MP
- **RAM/ROM**: 1024 MB / 128 MB
- **Electronic Shutter Speed**: 1/1 s to 1/30,000 s
- **Minimum Illumination**
  - Color: 0.005 lux at F1.6
  - B/W: 0.0005 lux at F1.6
  - 0 lux at F1.6 with IR on
- **IR Distance**: Distance up to 250.0 m (820.21 ft)
- **IR LED**: Six (6)

**Lens**
- **Focal Length**: 1.95 mm to 177.75 mm
- **Max. Aperture**: F1.6 to F4.95
- **Angle of View**
  - Horizontal: 1.8° to 70.3°
  - Vertical: 1° to 37°
  - Diagonal: 2° to 69.3°
- **Optical Zoom**: 45x
- **Focus Control**: Auto, Manual
- **Close Focus Distance**: 100 mm to 3000 mm (3.94 in. x 118.11 in.)

**DORI¹ Distance**
- **Detect (8 ppf)**
- **Observe (19 ppf)**
- **Recognize (38 ppf)**
- **Identify (76 ppf)**

**PTZ**
- **Pan/Tilt Range**
  - Pan: -30° to 360° endless
  - Tilt: -20° to 90°, Auto Flip 180°
- **Manual Control Speed**
  - Pan: 1° to 260° /s
  - Tilt: 1° to 120° /s
- **Preset Speed**
  - Pan: 300° /s
  - Tilt: 200° /s
- **Presets**: 300
- **PTZ Mode**: 5 Pattern, 8 Tour, Auto Pan, Auto Scan
- **Speed Setup**: Human-oriented Focal Length, Speed Adaptation
- **Power up Action**: Auto restore to previous PTZ and lens status after power failure
- **Idle Motion**: Activate Preset, Scan, Tour, or Pattern if there is no command in the specified period
- **Protocol**: DH-SD, Pelco-P/D (auto recognition)

**Video**
- **Compression**: Smart H.265+, H.265, Smart H.264+, H.264, MPEG (sub stream only)
- **Streaming Capability**: Three (3) Streams
- **Resolution**
  - Main Stream: 4 MP, 3 MP, 1080p, 1.3 MP, or 720p at 30 fps
  - Sub Stream 1: D1, CIF at 30 fps
  - Sub Stream 2: 1080p or 720p at 30 fps

**Audio**
- **Compression**: G.711a, G.711Mu, AAC, G.722, G.726, G.729, MPEG2-L2

**Network**
- **Ethernet**: RJ-45 (10 Base-T/100 Base-TX)
- **Protocol**: IPv4/IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, RTSP, RTP, SMTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, 802.1x
- **Interoperability**: ONVIF Profile S and G, API
- **Streaming Method**: Unicast / Multicast
- **Max. User Access**: 20 users
- **Edge Storage**: NAS (Network Attached Storage), Local PC for instant recording, Micro SD Card Slot, maximum 256 GB
- **Web Viewer**: IE 10, Firefox
- **Management Software**: Smart PSS, DSS, DMSS
- **Mobile Operating System**: iOS, Android
- **Certifications**: CE, EN 55032, EN 55024, EN 50130-4
- **Electromagnetic Compatibility (EMC)**: FCC Part 15 Subpart B, ANSI C63.4-2014

**Interface**
- **Audio**: Input: One (1) Channel
  - Output: One (1) Channel
- **RS485**: One (1)
- **Alarm**: Input: Seven (7) Channels
  - Output: Two (2) Channels

**Electrical**
- **Power Supply**: 24 VAC, 3 A (± 10%) or PoE+ (IEEE 802.3at)
- **Power Consumption**: 13 W, 26 W with IR on

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¹ The DORI distance is a measure of the general proximity for a specific classification to help pinpoint the right camera for your needs. The DORI distance is calculated based on sensor specifications and lab test results according to EN 62676-4, the standard that defines the criteria for the Detect, Observe, Recognize and Identify classifications.

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Environmental

<table>
<thead>
<tr>
<th>Operating Conditions</th>
<th>–40° C to 70° C (–40° F to +158° F), Less than 95% RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress Protection</td>
<td>IP67</td>
</tr>
<tr>
<td>Vandal Resistance</td>
<td>IK10</td>
</tr>
</tbody>
</table>

Construction

<table>
<thead>
<tr>
<th>Casing</th>
<th>Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Ø209.0 mm x 337.4 mm (Ø8.23 in. x 13.28 in.)</td>
</tr>
<tr>
<td>Net Weight</td>
<td>5.90 kg (13.01 lb)</td>
</tr>
<tr>
<td>Gross Weight</td>
<td>9.60 kg (21.16 lb)</td>
</tr>
</tbody>
</table>

Analytics+ Functions²

<table>
<thead>
<tr>
<th>Perimeter Protection</th>
<th>Detects human or vehicle violations using the following methods: Tripwire: a target crosses a defined line. Intrusion: a target enters or exits a defined perimeter.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Structuralization</td>
<td>Distinguishes between motor vehicle, non-motor vehicle, and human targets. Optimizes images and takes a snapshot of each target.</td>
</tr>
</tbody>
</table>

Intelligent Video System Functions²

<table>
<thead>
<tr>
<th>IVS triggers an alarm and takes a defined action for the following events:</th>
<th>Standard Features</th>
<th>Premium Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tampering with the camera.</td>
<td>Motion</td>
</tr>
<tr>
<td></td>
<td>Error writing to an onboard Micro SD card.</td>
<td>A object moves through any part of the scene.</td>
</tr>
<tr>
<td></td>
<td>Error sending or receiving data over the network.</td>
<td>Scene Change</td>
</tr>
<tr>
<td></td>
<td>Unauthorized access to the camera.</td>
<td>An object moves through any part of the scene.</td>
</tr>
</tbody>
</table>

Accessories

Included:
- PFB305W Wall Mount
- AC24V/3A Power Adapter
- PFA111 Mount Adapter
- PFA120 Junction Box
- PFA140 Power Box
- PFB300C Ceiling Mount
- PFA150 Pole Mount
- PFA151 Corner Mount
- PFB303S Parapet mount

Optional:
- PFA111 Mount Adapter
- PFA120 Junction Box
- PFA140 Power Box
- PFB300C Ceiling Mount
- PFB303S Parapet mount

² The Perimeter Protection and the IVS functions cannot be used at the same time, only one Analytics+ or IVS function can be used at a time. In addition, the Smart H.265+ and the Smart H.264+ cannot be used simultaneously with either an Analytics+ or an IVS feature.
<table>
<thead>
<tr>
<th>Mounting Type</th>
<th>Mounting Type</th>
<th>Dimensions (mm/in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling Mount</td>
<td>Junction Mount</td>
<td></td>
</tr>
<tr>
<td>PFA111 + PFB300C</td>
<td>PFB305W</td>
<td></td>
</tr>
<tr>
<td>Power Box Mount</td>
<td>Pole Mount</td>
<td></td>
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<tr>
<td>PFB305W + PFA140</td>
<td>PFB305W + PFA150</td>
<td></td>
</tr>
<tr>
<td>Corner Mount</td>
<td>Parapet Mount</td>
<td></td>
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<tr>
<td>PFB305W + PFA151</td>
<td>PFA111 + PFB303S</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions (mm/in.)

- 46.70 mm (1.84 in.)
- 21.0 mm (0.83 in.)
- 25.0 mm (0.98 in.)
- 337.40 mm (13.28 in.)
- 166.40 mm (6.55 in.)
- 189.0 mm (7.44 in.)
- 154.20 mm (6.07 in.)
- 209.0 mm (8.23 in.)