**Dahua** TECHNOLOGY

# 4MP Starlight Network PTZ
## 45x PTZ Laser Network Camera with Analytics+

- 1/2.8-in. 4 MP Progressive-scan CMOS Sensor
- Powerful 45x Optical Zoom Lens
- Smart H.265+ and Smart H.264+ Dual Codecs
- 4 MP at 30 fps Maximum Resolution
- Starlight Technology for Ultra Low-light Sensitivity
- True Wide Dynamic Range (120 dB)
- Predictive Focus Algorithm
- ArcticPro Series Camera - Operational down to −40° C (−40° F)
- IP67 Ingress Protection
- Analytics+ Function – Perimeter Protection, Smart Motion Detection, and Face Detection
- Maximum IR Distance up to 550 m (1,804 ft)
- Supports Dahua Proprietary Hi-PoE Power Source
- Five-year Warranty*

**SMD** Smart Motion Detection

ArcticPro

| H.265 | WDR | 0.005 Lux | ICR D/N | IP67 | Hi-PoE |

## System Overview

The 4 MP Laser IR PTZ Dome camera features a 1/2.8-in CMOS 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 Smart 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.

### Smart Motion Detection

Smart Motion Detection, a component of Dahua's Analytics+ technology, improves alarm accuracy and decreases the number of false alarms. The advanced SMD algorithm analyzes a scene for human or vehicle motion, while filtering out other motion due to trees, leaves, animals, weather, and triggers an alarm when detected. SMD also saves time when searching recorded video by filtering false alarms and allowing quick retrieval of an alarm due to a person or vehicle.

### Starlight Technology

For challenging low-light applications, Dahua's Starlight Ultra-low Light Technology offers best-in-class light sensitivity, capturing 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

The camera uses innovative PFA Technology to improve zoom accuracy and to decrease focus time. A series of advanced algorithms more accurately judge the direction and the distance to a subject, improving picture clarity throughout the zooming process.

### ArcticPro

The Dahua ArcticPro Series of extreme-environment cameras combine temperature-tolerant components, a waterproof enclosure, and an integrated heater to ensure flawless operation in temperatures as low as −40° C (−40° F). For applications that demand high-resolution video with advanced features in extremely cold environments, the Dahua ArcticPro Series offers a camera to satisfy the most demanding requirements.

### Environmental

Subjected and certified to rigorous dust and water immersion tests, the IP67 rating makes it suitable for demanding outdoor applications.

ONVIF

## Technical Specification

### Camera

| | |
|---|---|
| Image Sensor | 1/2.8-in. CMOS |
| Effective Pixels | 2560(H) x 1440(V), 4 MP |
| RAM/ROM | 1 GB / 4 GB |
| Scanning System | Progressive |
| Electronic Shutter Speed | 1/1 s to 1/30,000 s |
| Minimum Illumination | Color: 0.005 lux at F1.6<br>B/W: 0.0005 lux at F1.6<br>0 Lux with IR on |
| IR Distance | Distance up to 550.0 m (1804.46 ft) |
| IR On/Off Control | Zoom Priority, Manual, Smart IR,Off |
| Illuminators | Two (2) IR Illuminators<br>One (1) Laser Module |

### Lens

| | |
|---|---|
| Focal Length | 3.95 mm to 177.7 mm |
| Maximum Aperture | F1.6 to F4.9 |
| Angle of View | Horizontal: 70.3° to 1.8°<br>Vertical: 37.0° to 1.0°<br>Diagonal: 63.9° to 2.0° |
| Optical Zoom | 45x |
| Iris Control | Automatic |
| Focus Control | Automatic, Semi-automatic, Manual |
| Close Focus Distance | 0.01 m to 3.0 m (0.03 ft to 9.84 ft) |

### DORI Distance[1]

| Detect (8 ppf) | Observe (19 ppf) | Recognize (38 ppf) | Identify (76 ppf) |
|---|---|---|---|
| 3554 m (11660 ft) | 1421 m (4664 ft) | 710 m (2332 ft) | 355 m (1166 ft) |

### PTZ

| | |
|---|---|
| Pan/Tilt Range | Pan: 0° to 360° endless<br>Tilt: −20° to 90°, Auto Flip 180° |
| Manual Control Speed | Pan: 0.1° to 200° /s<br>Tilt: 0.1° to 120° /s |
| Preset Speed | Pan: 240° /s;<br>Tilt: 200° /s |
| Presets | 300 |
| PTZ Mode | 5 Pattern, 8 Tour (up to 32 presets per tour), 5 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/ 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.264B, H.264, H.264H, MPEG4, MJPEG (sub-stream only) |
| Streaming Capability | Three (3) Streams |
| Resolution | 4 MP (2560 x 1440), 3 MP (2048 x 1536), 1080p (1920 x 1080), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 380), CIF (352 x 240) |

| Frame Rate | Main Stream | 4 MP at 30 fps |
|---|---|---|
| | Sub Stream 1 | D1 or CIF at 30 fps |
| | Sub Stream 2 | 1080p or 720p at 30 fps |

| | |
|---|---|
| Bit Rate Control | CBR, VBR |
| Bit Rate | Main stream with default resolution:<br>H.265 / H.264: 3 Kbps to 20480 Kbps |
| Day/Night | Auto (ICR), Color, B/W |
| Backlight Compensation | BLC, HLC, True WDR (120 dB) |
| White Balance | Auto, Manual, Aperture Priority, Gain Priority, Shutter Priority |
| Gain Control | Auto, Manual |
| Noise Reduction | 2D/3D |
| Advanced Features | Motion Detection, Region of Interest, Electronic Image Stabilization (EIS), Defog |
| Digital Zoom | 16x |
| Flip | 180° |
| Privacy Masking | Up to 24 areas, with 8 areas in the same view |

### Audio

| | |
|---|---|
| Compression | G.711a, G.711Mu, G.726, AAC, G.722.1, G.729, G.723, MPEG2-L2 |

### Network

| | |
|---|---|
| Ethernet | RJ45 (10/100 Base-T) |
| Protocol | IPv4/IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, SNMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, 802.1x |
| Interoperability | ONVIF (Profile S and G), CGI |
| Streaming Method | Unicast / Multicast |
| Max. User Access | 19 users |
| Edge Storage | FTP, P2P<br>Micro SD Card Slot, maximum 256 GB |
| Web Viewer | IE 7 and later<br>Firefox version 52 and later<br>Chrome version 42 and later |
| Management Software | Smart PSS, DSS Express S, DMSS, IVSS |
| Mobile Operating System | IOS, Android |

### Certifications

| | |
|---|---|
| CE | EN 62368-1, EN 55032, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 55035, EN 50130-4 |
| Electromagnetic Compatibility (EMC) | 47 CFR FCC Part 15 Subpart B<br>ANSI C63.4:2014 |

### Interface

| | |
|---|---|
| Audio Interface | Input: One (1) Channel<br>Output: One (1) Channel |
| RS485 | One (1) |
| Alarm | Input: Seven (7) Channels<br>Output: Two (2) Channels |

### Electrical

| | |
|---|---|
| Power Supply | 36 VDC, 2.23 A or<br>via Dahua proprietary Hi-PoE power source |
| Power Consumption | Basic: 20 W<br>Maximum: 36 W with IR on |

1. The DORI distance is a general proximity of distance helping to pinpoint the correct camera for your needs. The DORI distance is calculated based on sensor specifications and lab test results according to EN 62676-4 which defines the criteria for Detect, Observe, Recognize and Identify.

## Environmental

| | |
|---|---|
| Operating Conditions | −40° C to 70° C (−40° F to +158° F)<br>Less than 95% RH |
| Ingress Protection | IP67 |
| Surge Protection | TVS 8000V |

## Construction

| | |
|---|---|
| Casing | Metal |
| Dimensions | ø239.80mm x 382.0 mm (ø9.44 in. x 15.04 in.) |
| Net Weight | 6.80 kg (14.99 lb) |
| Gross Weight | 9.20 kg (20.28 lb) |

## Analytics+ Functions

| | |
|---|---|
| Perimeter Protection | • Detects human or vehicle violations using the following methods:<br>**Tripwire:** a target crosses a defined line.<br>**Intrusion:** a target enters or exits a defined perimeter.<br>• Monitors a combination of ten (10) detection methods.<br>• Search and retrieve video based on target type. |
| Smart Motion Detection[2] | • Differentiates between and classifies human and vehicle objects.<br>• Filters false alarms due to leaves, lights, animals, and other inconsequential objects.<br>• Extracts human or vehicle objects from recorded video for quick target search and retrieval. |
| Face Detection | • Detects and captures a snapshot of a human face within a scene. |

## Intelligent Video System Functions

IVS triggers an alarm and takes a defined action for the following events:

| | |
|---|---|
| Standard Features | • Tampering with the camera.<br>• Error writing to an onboard Micro SD card.<br>• Error sending or receiving data over the network.<br>• Unauthorized access to the camera.<br>• IP Address Conflict |
| Premium Features | |
| Motion | An object moves through any part of the scene. |
| Scene Change | A person or object moves the camera to change the scene or covers the camera to obscure the scene. |
| Abandoned/Missing Object | A target leaves an object in designated area, or a target removes an object from the same designated area. |
| Advanced Features | |
| Auto-tracking | Controls the pan/tilt/zoom actions of the camera to automatically track an object in motion and to keep it in the scene. |

## Ordering Information

| Type | Part Number | Description |
|---|---|---|
| 4 MP PTZ Camera | 6AL445AXNR | 4 MP 45x Laser PTZ Network Camera |
| Accessories, Included | PFA111 | Mount Adapter |
| | PFB303W | Wall Mount |
| | DC36V/2.23A | Power Adapter |
| Accessories, Optional | PFA120 | Junction Box |
| | PFA140 | Power Box |
| | PFA150 | Pole Mount |
| | PFA151 | Corner Mount |
| | PFB300C | Ceiling Mount |
| | PFB303S | Parapet Mount |
| Accessories, Optional Dahua Hi-PoE Power Source | PFT1200 | Hi-PoE Midspan |
| | DH-LR2110-8ET-120 | 8-port ePoE Layer 2 Switch |

## Accessories

Included:



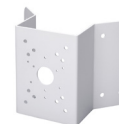| PFB303W<br>Wall Mount | PFA111<br>Mount Adapter | DC36V/2.23A<br>Power Adapter |

Optional :



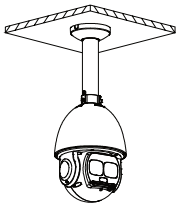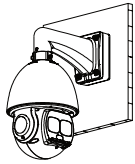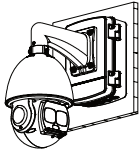| PFA140<br>Power Box | PFB300C<br>Ceiling Mount | PFA120<br>Junction Box |

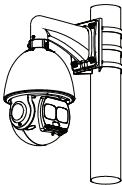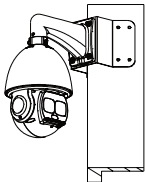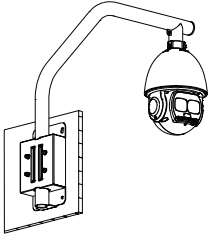| PFA150<br>Pole Mount | PFA151<br>Corner Mount | PFB303S<br>Parapet Mount |

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2. Pair a Smart Motion Detection camera with a Dahua recording device that also offers SMD functionality to take advantage of SMD alarm filtering and object classification when searching and playing back recorded video.

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| Ceiling Mount | Junction Mount |
|---|---|
| PFA111 + PFB300C | PFA111 + PFB303W + PFA120 |
|  |  |
| **Power Box Mount** | **Pole Mount** |
| PFA111 + PFB303W + PFA140 | PFA111 + PFB303W + PFA150 |
|  |  |
| **Corner Mount** | **Parapet Mount** |
| PFA111 + PFB303W + PFA151 | PFA111+ PFB303S |
|  |  |

### Dimensions (mm/in.)



50.0 mm (1.97 in.)

174.0 mm (6.85 in.)

382.0 mm (15.04 in.)

213.60 mm (8.41 in.)

ø239.80 mm (ø9.44 in.)