

# 4MP Starlight Network Eyeball Camera

True Wide Dynamic Network Camera with Smart Motion Detection



**Wiz Sense**



WizSense Series devices combine Dahua's powerful Analytics+ with an intuitive and easy to use interface. WizSense devices offer Smart Motion Detection and Perimeter Protection functions that focus on human and vehicular images and ignore irrelevant images to capture important video while reducing false alarms. WizSense Series devices provide powerful general surveillance for small to medium size businesses at a sensible price.

## System Overview

The Dahua 4 MP Starlight camera offers Smart Motion Detection for improved alarm accuracy from intrusion and tripwire functions. The camera is ideal for a host of diverse applications — Starlight, True Wide Dynamic Range, and IR illumination allow the camera to operate in any lighting condition. The camera is a component of the Dahua ArcticPro series and is rated to IP67 allowing the camera to deliver high-quality and reliable video in the harshest environments.

## Functions

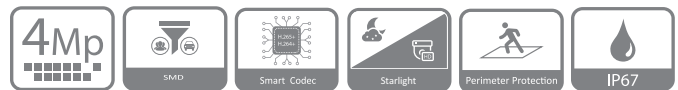
### Perimeter Protection

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.

- 1/3 in. 4 MP Progressive-scan CMOS Sensor
- Triple-stream Encoding
- Smart H.265+ and Smart H.264+ Dual Codec
- 4 MP (2688 x 1520) at 30 fps, 2.8 mm Fixed Lens
- Starlight Technology for Low-light Applications
- Analytics+ Function – Perimeter Protection and Smart Motion Detection
- True Wide Dynamic Range (120 dB) and Day/Night IR Cut Filter
- Maximum IR LED Distance 50 m (164.04 ft)
- Built-in Microphone
- Enhanced Power and Data Transmission Distances (ePoE)
- ArcticPro Series Camera - Operational down to  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ )
- IP67 Ingress Protection
- Five-year Warranty\*



### ArcticPro

The Dahua ArcticPro Series of extreme-environment cameras combine temperature-tolerant components with a waterproof enclosure to ensure flawless operation in temperatures as low as  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ) without the need for an internal heater. The lack of a heater reduces the camera's power consumption and saves operating costs. 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.

### 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 conditions. The camera uses a set of optical features to balance light throughout the scene, resulting in clear images in dark environments.

### 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.

### Cybersecurity

Dahua network cameras are equipped with a series of key cybersecurity technologies including: security authentication and authorization, access control, trusted protection, encrypted transmission, and encrypted storage. These technologies improve the camera's ability to prevent malicious access and to protect data.

### Environmental

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             | 1/3-in. 4 MP CMOS                                 |
| Effective Pixels         | 2688(H) x 1520(V)                                 |
| RAM/ROM                  | 512 MB/128 MB                                     |
| Scanning System          | Progressive                                       |
| Electronic Shutter Speed | Auto, Manual, 1/3 s to 1/100,000 s                |
| Minimum Illumination     | Color: 0.005 lux at F1.6<br>0 lux at F1.6 (IR on) |
| IR Distance              | Up to 50.0 m (164.04 ft)                          |
| IR On/Off Control        | Auto, Manual                                      |
| IR LEDs                  | Two (2)   |

#### Lens

|                            |   |                       |                       |                       |                      |
|----------------------------|---|-----------------------|-----------------------|-----------------------|----------------------|
| Lens Type                  | Fixed Focal   |                       |                       |                       |                      |
| Iris Type                  | Fixed Aperture                                      |                       |                       |                       |                      |
| Mount Type                 | M12   |                       |                       |                       |                      |
| Focal Length               | 2.8 mm  |                       |                       |                       |                      |
| Maximum Aperture           | F1.6  |                       |                       |                       |                      |
| Angle of View              | Horizontal: 103°<br>Vertical: 55°<br>Diagonal: 122° |                       |                       |                       |                      |
| Close Focus Distance       | 0.90 m (2.95 ft)                                    |                       |                       |                       |                      |
|                            | Lens  | Detect                | Observe               | Recognize             | Identify             |
| DORI Distance <sup>1</sup> | 2.8 mm  | 56.0 m<br>(183.73 ft) | 22.40 m<br>(73.49 ft) | 11.20 m<br>(36.75 ft) | 5.60 m<br>(18.37 ft) |

#### Installation Angle

|       |  |
|-------|--|
| Range | Pan: 0° to 360°<br>Tilt: 0° to 78°<br>Rotation: 0° to 360° |
|-------|--|

#### Video

|                      |   |
|----------------------|---|
| Compression          | Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (Sub Stream only)   |
| Streaming Capability | Three (3) Streams   |
| Resolution           | 4 MP (2688 x 1520), 3 MP (2304 x 1296), 1080p (1920 x 1080), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480), VGA (640 x 480), CIF (352 x 240) |
| Frame Rate           | Main Stream: 4 MP (2688 x 1520) at 30 fps<br>Sub Stream 1: D1 (704 x 480) at 30 fps<br>Sub Stream 2: 720p (1280 x 720) at 30 fps                      |
| Bit Rate Control     | CBR/VBR   |
| Bit Rate             | H.264: 3 Kbps to 8192 Kbps<br>H.265: 3 Kbps to 8192 Kbps  |
| Day/Night            | Auto (ICR), Color, B/W  |
| BLC Mode             | BLC, HLC, True WDR (120 dB), SSA  |

|                    |   |
|--------------------|---|
| White Balance      | Auto, Natural, Street Lamp, Outdoor, Manual, Regional Custom          |
| Gain Control       | Auto, Manual, Shutter Priority, Gain Priority                         |
| Noise Reduction    | 3D DNR  |
| Motion Detection   | Off, On (4 Zones, Rectangular)  |
| Region of Interest | Off, On (4 Zones)   |
| Advanced Features  | Smart IR  |
| Image Rotation     | 0°, 90°, 180°, 270°<br>(supports 90°, 270° at 1920 x 1080 resolution) |
| Mirror             | Off, On   |
| Privacy Masking    | Off, On (4 Areas, Rectangular)  |

#### Audio

|             |                        |
|-------------|------------------------|
| Compression | G.711a, G.711Mu, G.726 |
|-------------|------------------------|

#### Network

|                         |  |
|-------------------------|--|
| Ethernet                | RJ-45 (10/100 Base-T)  |
| Protocol                | IPv4, IPv6, HTTP, HTTPS, TCP, UDP, ARP, RTP, RTSP, RTCP, RTMP, SMTP, FTP, SFTP, DHCP, DNS, DDNS, QoS, UPnP, NTP, Multicast, ICMP, IGMP, NFS, PPPoE, 802.1x, SNMP   |
| Interoperability        | ONVIF Profile S and G, CGI, Milestone, Genetec, P2P  |
| Self-adaptive Scene     | Support  |
| Streaming Method        | Unicast / Multicast  |
| Maximum User Access     | 20 Users (total bandwidth: 64 Mbps)  |
| Edge Storage            | Network Attached Storage (NAS)<br>FTP, SFTP,<br>Micro SD Card Slot, maximum 256 GB   |
| Web Viewer              | IE (Version 8 and higher), Chrome, Firefox,  |
| Management Software     | Smart PSS, DSS, DMSS   |
| Mobile Operating System | IOS, Android   |
| Cybersecurity           | Video Encryption, Firmware Encryption, Configuration Encryption, Digest, WSSE, Account Lockout, Security Logs, IP/MAC Filtering, Generating and Importing X.509 Certification, Syslog, HTTPS, 802.1x, Trusted Boot, Trusted Execution, Trusted Upgrade |

#### Certifications

|                                     |   |
|-------------------------------------|---|
| Safety                              | UL 60950-1 & CAN/CSA C22.2 No. 60950-1-07<br>EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013<br>IEC 60950-1:2005 (Second Edition)                                 |
| Electromagnetic Compatibility (EMC) | 47 CFR FCC Part 15, Subpart B, Class B<br>EN 55032:2015, Class B; EN 61000-3-2:2014;<br>EN 61000-3-3:2013; EN 55024:2010+A1:2015;<br>EN 55035:2017; EN 50130-4:2011+A1:2014 |

#### Interface

|             |                     |
|-------------|---------------------|
| Audio Input | Built-in Microphone |
|-------------|---------------------|

#### Electrical

|                   |                                       |
|-------------------|---------------------------------------|
| Power Supply      | 12 VDC or PoE (IEEE 802.3af, Class 0) |
| Power Consumption | < 7.7 W                               |

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.

Environmental

|                      |   |
|----------------------|---|
| Operating Conditions | -40° C to +60° C (-40° F to +140° F),<br>Less than 95% RH |
| Storage Conditions   | -40° C to +60° C (-40° F to +140° F)                      |
| Ingress Protection   | IP67  |

Construction

|              |  |
|--------------|--|
| Casing       | Metal  |
| Dimensions   | Ø121.90 mm x 99.10 mm<br>(4.80 in. x 3.90 in.) |
| Net Weight   | 0.48 kg (1.06 lb)                              |
| Gross Weight | 0.66 kg (1.45 lb)                              |

Analytics+ Functions

|                         |  |
|-------------------------|--|
| Perimeter Protection    | <ul style="list-style-type: none"> <li>Detects human or vehicle violations using the following methods:                             <ul style="list-style-type: none"> <li><b>Tripwire:</b> a target crosses a defined line.</li> <li><b>Intrusion:</b> a target enters or exits a defined perimeter.</li> </ul> </li> <li>Monitors a combination of nine (9) detection methods.</li> <li>Search and retrieve video based on target type.</li> </ul> |
| Smart Motion Detection? | <ul style="list-style-type: none"> <li>Differentiates between and classifies human and vehicle objects.</li> <li>Filters false alarms due to leaves, lights, animals, and other inconsequential objects.</li> <li>Extracts human or vehicle objects from recorded video for quick target search and retrieval.</li> </ul>  |

Intelligent Video System Functions

|  |  |
|--|--|
| IVS triggers an alarm and takes a defined action for the following events: |  |
| Standard Features  | <ul style="list-style-type: none"> <li>Tampering with the camera.</li> <li>Error writing to an onboard Micro SD card.</li> <li>Error sending or receiving data over the network.</li> <li>Unauthorized access to the camera.</li> <li>IP Address Conflict</li> </ul> |
| 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.   |

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.

ePoE Transmission Distances

Via CAT5E/CAT6 Ethernet Cable

ePoE supply voltage 48 V  
Maximum DC resistance < 10 Ω/100 m

| Cable Length, m (ft) | Bandwidth, Mbps | PoE Load Capacity, W | Hi-PoE Load Capacity, W | Working Mode |
|----------------------|-----------------|----------------------|-------------------------|--------------|
| 100 (328)            | 100             | 25.5                 | 53                      | IEEE/E100    |
| 200 (656)            | 100             | 25.5                 | 33                      | E100         |
| 300 (984)            | 100             | 19                   | 19                      | E100         |
| 400 (1312)           | 10              | 17                   | 17                      | E10          |
| 500 (1640)           | 10              | 13                   | 13                      | E10          |
| 800 (2625)           | 10              | 7                    | 7                       | E10          |

Via CAT5E/CAT6 Ethernet Cable

ePoE supply voltage 53 V  
Maximum DC resistance < 10 Ω/100 m

| Cable Length, m (ft) | Bandwidth, Mbps | PoE Load Capacity, W | Hi-PoE Load Capacity, W | Working Mode |
|----------------------|-----------------|----------------------|-------------------------|--------------|
| 100 (328)            | 100             | 25.5                 | 53                      | IEEE/E100    |
| 200 (656)            | 100             | 25.5                 | 47                      | E100         |
| 300 (984)            | 100             | 25.5                 | 32                      | E100         |
| 400 (1312)           | 10              | 23                   | 26                      | E10          |
| 500 (1640)           | 10              | 20                   | 20                      | E10          |
| 800 (2625)           | 10              | 13                   | 13                      | E10          |

Via RG-59 Coaxial Cable

ePoE supply voltage 48 V  
Maximum DC resistance < 5 Ω/100 m

| Cable Length, m (ft) | Bandwidth, Mbps | PoE Load Capacity, W | Hi-PoE Load Capacity, W | Working Mode |
|----------------------|-----------------|----------------------|-------------------------|--------------|
| 100 (328)            | 100             | 25.5                 | 50                      | IEEE/E100    |
| 200 (656)            | 100             | 25.5                 | 30                      | E100         |
| 300 (984)            | 100             | 18                   | 18                      | E100         |
| 400 (1312)           | 100             | 15                   | 15                      | E100         |
| 500 (1640)           | 10              | 12                   | 12                      | E10          |
| 800 (2625)           | 10              | 6                    | 6                       | E10          |
| 1000 (3281)          | 10              | 5                    | 5                       | E10          |

Via RG-59 Coaxial Cable

ePoE supply voltage 53 V  
Maximum DC resistance < 5 Ω/100 m

| Cable Length, m (ft) | Bandwidth, Mbps | PoE Load Capacity, W | Hi-PoE Load Capacity, W | Working Mode |
|----------------------|-----------------|----------------------|-------------------------|--------------|
| 100 (328)            | 100             | 25.5                 | 52                      | IEEE/E100    |
| 200 (656)            | 100             | 25.5                 | 48                      | E100         |
| 300 (984)            | 100             | 25.5                 | 30                      | E100         |
| 400 (1312)           | 100             | 20                   | 23                      | E100         |
| 500 (1640)           | 10              | 16                   | 16                      | E10          |
| 800 (2625)           | 10              | 10                   | 10                      | E10          |
| 1000 (3281)          | 10              | 8                    | 8                       | E10          |

**Ordering Information**

| Type                  | Part Number   | Description  |
|-----------------------|---------------|--|
| 4 MP Camera           | N43AJ52       | 5 MP Starlight Fixed Lens Eyeball Camera with Smart Motion Detection |
| Accessories, optional | PFA106        | Mount Adapter  |
|                       | PFA130-E      | Junction Box   |
|                       | PFA150        | Pole Mount<br>(Use with PFA106 and PFB305W)                          |
|                       | PFA151        | Corner Mount<br>(Use with PFA106 and PFB305W)                        |
|                       | PFA152-E      | Pole Mount<br>(Use with PFB203W Wall Mount)                          |
|                       | PFA200G       | Gang Box Adapter   |
|                       | PFB203W       | Wall Mount   |
|                       | PFB220C       | Ceiling Mount<br>(Use with PFA106 Mount Adapter)                     |
|                       | PFB305W       | Wall Mount<br>(Use with PFA106 Mount Adapter)                        |
|                       | DH-PFM321D-US | 12 VDC, 1 A Power Adapter  |

**Accessories**

Optional:



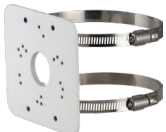
PFA106  
Mount Adapter



PFA130-E  
Waterproof  
Junction Box



PFA151  
Corner Mount



PFA152-E  
Pole Mount



PFA200G  
Gang Box Adapter



PFB203W  
Wall Mount



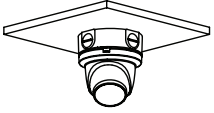
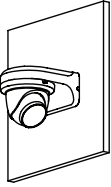

PFB220C  
Ceiling Mount



PFB305W  
Wall Mount



DH-PFM321D-US  
12 VDC, 1 A  
Power Adapter

| Junction Mount   | Wall Mount  | Pole Mount  |
|--|---|---|
| PFA130-E   | PFB203W   | PFB152-E+PFA203W  |
|  |  |  |

**Dimensions**

