

# 5 MP Fixed Mini Eyeball Network Camera

WDR IR Network Camera



- 1/2.7-in. 5 MP Progressive-scan CMOS Sensor
- Dual Stream Encoding with Smart H. 265+ and H.264 Dual Codecs
- 5 MP at 20 fps or 3 MP at 30 fps, Maximum Resolution
- Starlight Technology for Ultra-low Light Sensitivity
- 2.8 mm or 3.6 mm Fixed Lens Options
- True WDR (120 dB) and Day/Night (ICR)
- Maximum IR LED Length 30 m (98 ft) with Smart IR
- Intelligent Video System<sup>1</sup>
- IP67 Ingress Protection
- PoE Support
- Five-year Warranty\*



## System Overview

The Dahua 5 MP Pro Series cameras offer high-resolution video and cutting-edge technology in a compact and accessible package. The cameras feature Smart H.265+ video compression, reducing bandwidth and storage requirements without sacrificing video quality. The camera's elegant blend of aesthetics combined with a range of easy mounting solutions provides an excellent choice for a variety of small to mid-size applications at an affordable price.

## Functions

### 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 0.009 lux. 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.

### Wide Dynamic Range (WDR)

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.

### Intelligent Video System

IVS is a built-in video analytic algorithm that delivers intelligent functions to monitor a scene for Tripwire violations, motion detection and intrusion detection. A camera with IVS quickly and accurately responds to monitoring events in a specific area and offers tamper detection by recognizing a dramatic scene change and generating a warning message to inspect the camera.

### Smart IR Technology

With IR illumination, detailed images can be captured in low light or total darkness. The camera's Smart IR technology adjusts the intensity of the camera's infrared LEDs to compensate for the distance of an object. Smart IR technology prevents IR LEDs from whitening out images as they come closer to the camera. The camera's integrated infrared illumination provides high-performance in extreme low-light environments up to 30 m (98 ft).

### Interoperability

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

### Environmental

Dahua cameras operate in extreme temperature environments, rated for use in temperatures from  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ ) with 95% humidity. The camera allows for  $\pm 10\%$  input voltage tolerance, suitable for the most unstable conditions for outdoor applications. Its 2KV lightning rating provides effective protection for both the camera and its structure against lightning. 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             | 1/2.7-in. 5 MP Progressive-scan CMOS   |
| Effective Pixels         | 2592(H) x 1944(V)  |
| RAM/ROM                  | 512 MB / 32 MB   |
| Scanning System          | Progressive  |
| Electronic Shutter Speed | Auto, Manual; 1/3 s to 1/100000 s  |
| Minimum Illumination     | Color: 0.009 lux at F1.6 (1/3 s, 30 IRE)<br>Color: 0.09 lux at F1.6 (1/30 s, 30 IRE)<br>0 lux at F1.6 with IR on |
| S/N Ratio                | More than 50 dB  |
| IR Distance              | Distance up to 30.0 m (98.43 ft)   |
| IR On/Off Control        | Auto, Manual   |
| IR LEDs                  | 12   |

#### Lens

|                            |          |                                  |                  |                    |                   |
|----------------------------|----------|----------------------------------|------------------|--------------------|-------------------|
| Lens Type                  | Fixed    |                                  |                  |                    |                   |
| Mount Type                 | Board-in |                                  |                  |                    |                   |
| Focal Length               | N51BI22  | 2.8 mm                           |                  |                    |                   |
|                            | N51BI23  | 3.6 mm                           |                  |                    |                   |
| Maximum Aperture           | F1.6     |                                  |                  |                    |                   |
| Angle of View              | N51BI22  | Horizontal: 96°<br>Vertical: 70° |                  |                    |                   |
|                            | N51BI23  | Horizontal: 78°<br>Vertical: 58° |                  |                    |                   |
| Focus Control              | Fixed    |                                  |                  |                    |                   |
| DORI <sup>2</sup> Distance | Lens     | Detect (8 ppf)                   | Observe (19 ppf) | Recognize (38 ppf) | Identify (76 ppf) |
|                            | 2.8 mm   | 63 m (207 ft)                    | 25 m (82 ft)     | 13 m (43 ft)       | 6 m (20 ft)       |
|                            | 3.6 mm   | 80 m (262 ft)                    | 32 m (105 ft)    | 16 m (52 ft)       | 8 m (26 ft)       |

#### Pan/Tilt/Rotation

|       |  |
|-------|--|
| Range | Pan: 0° to 360°<br>Tilt: 0° to 90°<br>Rotation: 0° to 360° |
|-------|--|

#### Video

|                      |   |
|----------------------|---|
| Compression          | Smart H.265+, H.265, Smart H.264+, H.264, MJPEG   |
| Streaming Capability | Two (2) Streams   |
| Resolution           | 5 MP (2592 x 1944), 2688 x 1520, 2560 x 1440, 2304 x 1296, 1080p (1920 x 1080), SXGA (1280 x 1024), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480), CIF (352 x 240) |
| Frame Rate           | Main Stream: 5 MP at 20 fps or 3 MP at 30 fps<br>Sub Stream 1: D1/CIF at 30 fps   |
| Bit Rate Control     | CBR/VBR   |
| Bit Rate             | H.264: 32 K to 10240 Kbps<br>H.265: 12 K to 8448 Kbps   |
| Day/Night            | Auto (ICR), Color, B/W  |
| BLC Mode             | BLC, HLC, WDR (120 dB)  |

|                    |   |
|--------------------|---|
| White Balance      | Auto, Natural, Street Lamp, Outdoor, Manual |
| Gain Control       | Auto, Manual                                |
| Noise Reduction    | 3D DNR                                      |
| Motion Detection   | Off, On (4 Zones, Rectangle)                |
| Region of Interest | Off, On (4 Zones)                           |
| Smart IR           | Support                                     |
| Digital Zoom       | 16x   |
| Flip               | 0°, 90°, 180°, 270°                         |
| Mirror             | Off, On                                     |
| Privacy Masking    | Off, On (4 Areas, Rectangle)                |

#### Network

|                         |   |
|-------------------------|---|
| Ethernet                | RJ-45 (10/100 Base-T)   |
| Protocol                | HTTP, HTTPS, TCP, ARP, RTSP, RTP, UDP, SMTP, FTP, DHCP, DNS, DDNS, PPPOE, IPv4/v6, QoS, UPnP, NTP, Bonjour, 802.1x, Multicast, ICMP, IGMP, SNMP |
| Interoperability        | ONVIF, PSIA, CGI  |
| Streaming Method        | Unicast, Multicast  |
| Max. User Access        | 10 Users / 20 Users   |
| Edge Storage            | NAS<br>Local PC for instant recording   |
| Web Viewer              | IE, Chrome, Firefox, Safari   |
| Management Software     | Smart PSS, DSS  |
| Mobile Operating System | iOS, Android  |

#### Certifications

|                                     |                              |
|-------------------------------------|------------------------------|
| Safety                              | UL60950-1                    |
| Electromagnetic Compatibility (EMC) | FCC CFR 47 Part 15 Subpart B |

#### Electrical

|                   |  |
|-------------------|--|
| Power Supply      | 12 VDC ± 10%, 330 mA maximum; or PoE (802.3af Class 0) |
| Power Consumption | < 4 W  |

Environmental

|                      |  |
|----------------------|--|
| Operating Conditions | -30° C to +60° C (-22° F to +140° F)<br>Less than 95% RH |
| Storage Conditions   | -30° C to +60° C (-22° F to +140° F)<br>Less than 95% RH |
| Ingress Protection   | IP67   |

Construction

|              |  |
|--------------|--|
| Casing       | Metal and Plastic                              |
| Dimensions   | ∅108.0 mm x 84.90 mm<br>(∅4.25 in. x 3.15 in.) |
| Net Weight   | 0.23 kg (0.51 lb)                              |
| Gross Weight | 0.39 kg (0.85 lb)                              |

Intelligence<sup>1</sup>

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> </ul> |
| Premium Features  |   |
| Tripwire          | A target crosses a user-defined line.   |
| Intrusion         | A target enters or exits a defined perimeter.   |

Ordering Information

| Type                  | Part Number | Description                                      |
|-----------------------|-------------|--|
| 5 MP Camera           | N51BI22     | 5 MP IR Mini Eyeball Network Camera, WDR, 2.8 mm |
|                       | N51BI23     | 5 MP IR Mini Eyeball Network Camera, WDR, 3.6 mm |
| Accessories, optional | PFA136      | Junction Box                                     |
|                       | PFA152-E    | Pole Mount                                       |
|                       | PFB203W     | Wall Mount                                       |
|                       | PFM321      | 12 VDC, 1 A Power Adapter                        |

Accessories

Optional:



PFA136  
Junction Box



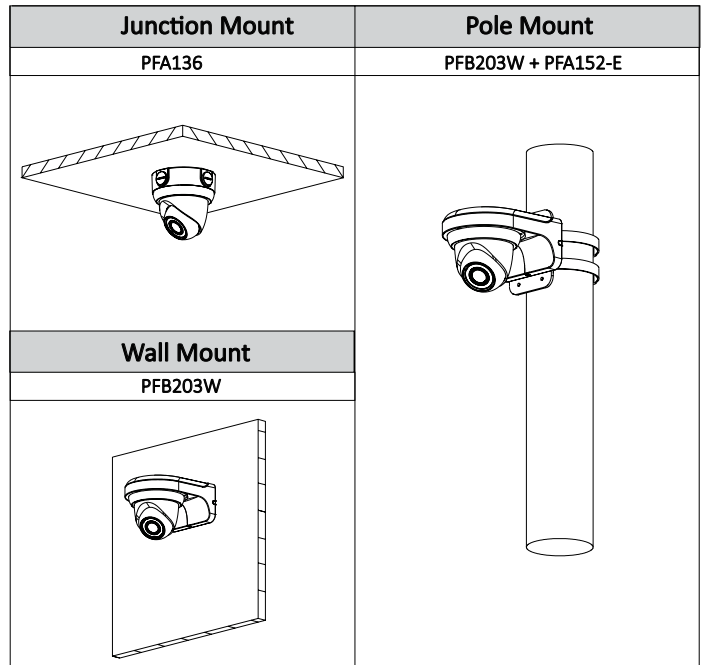
PFA152-E  
Pole Mount



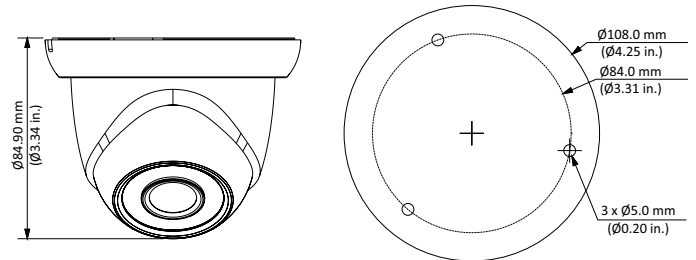
PFB203W  
Wall Mount



PFM321  
Power Adapter



Dimensions (mm/inch)



1. IVS Premium Features require Firmware Version 20171110 or higher.  
 2. 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.