8MP ePoE Starlight+ Network Bullet Camera

True Wide Dynamic Range Vari-focal Network Camera with Analytics+

- 1/1.8-in. 8MP Progressive-scan CMOS Sensor
- Triple-stream Encoding
- AI Coding, Smart H.265+, and Smart H.264+ Video Compression
- 8MP (3840 x 2160) at 30 fps, 2.7 mm to 12 mm Motorized Lens
- Enhanced Power and Data Transmission Distances (ePoE)
- Starlight+ Technology for Low-light Applications
- Analytics+ Functions — Perimeter Protection, People Counting, Queue Management, Smart Motion Detection+, and Face Detection
- IP67 Ingress Protection and IK10 Vandal Resistance
- True Wide Dynamic Range (120 dB) and Day/Night IR Cut Filter
- Maximum IR LED Distance 60 m (196.85 ft)
- Five-year Warranty*

8Mp | Perimeter Protection | People Counting | Starlight+

WizMind

WizMind Series devices offer Dahua Analytics+ functions for comprehensive, human-oriented analytic solutions. WizMind Series products are ideal for complex applications with demanding requirements that need advanced analytic capabilities.

System Overview

The Dahua 8MP Starlight+ ePoE camera offers Analytics+ functions at the edge – performing complex real-time face capture, people counting, and perimeter protection. The Dahua Analytics+ algorithms significantly improve accuracy and reliability as compared to standard intelligent features. The camera is ideal for a host of diverse applications — Starlight+, True Wide Dynamic Range, and Smart IR technologies allow the camera to operate in any lighting condition and the IP67 and IK10 rating make the camera suitable for the harshest environments.

Functions

People Counting

The camera uses complex real-time people counting algorithms to deliver accurate flow statistics from two distinct people counting functions, Line Crossing and Regional. The line crossing function counts the number of people crossing a defined line, and the regional function counts the number of people in a distinct, user-defined area. People counting is ideal for measuring the number of customers entering or exiting a location and to monitor groups of people in a distinct location.

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

Enhanced Power over Ethernet (ePoE) Technology

Dahua's innovative ePoE technology offers a plug-and-play solution to transmit power and data over long distances via Ethernet or coaxial cables, reducing installation time and saving money. ePoE technology is a viable, cost-effective solution for extending transmission distances and for converting existing, coax-based analog systems into IP systems.

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

The camera complies with an IK10 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.

*Warranty applies to products sold through an authorized Dahua Dealer.

Technical Specification

Camera

Image Sensor	1/1.8-in. 8MP CMOS
Effective Pixels	3840 (H) × 2160 (V)
RAM/ROM	1 GB / 128 MB
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual, 1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.004 lux at F1.4 (30 IRE) B/W: 0.0004 lux at F1.4 (30 IRE) 0 lux at F1.4 (with IR on)
S/N Ratio	Greater than 56 dB
IR Distance	Distance up to 60.0 m (196.85 ft)
IR On/Off Control	Auto, Manual, Zoom Priority, Off
IR LEDs	Four (4)

Lens

Lens Type	Motorized
Mount Type	ø14
Focal Length	2.7 mm to 12 mm
Max. Aperture	F1.4
Angle of View	Horizontal: 110.4° to 45° Vertical: 57.8° to 25.2° Diagonal: 133.8° to 51.8°
Aperture Control	Auto
Close Focus Distance	1.0 m (3.28 ft)

DORI Distance[1]	Lens	Detect (8 ppf)	Observe (19 ppf)	Recognize (38 ppf)	Identify (76 ppf)
	Wide	86.0 m (282.20 ft)	34.40 m (112.90 ft)	17.20 m (56.40 ft)	8.60 m (28.20 ft)
	Telephoto	196.0 m (643.0 ft)	78.40 m (257.20 ft)	39.20 m (128.60 ft)	19.60 m (64.30 ft)

Video

Compression	AI Coding, Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (sub stream only)
Streaming Capability	Three (3) Streams
Resolution	8MP (3840 x 2160), 3072 x 2048, 3072 x 1728, 2592 x 1944, 4MP (2688 x 1520), 3MP (2048 x 1536), 2304 x 1296, 1080p (1920 x 1080), 1.3MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480), VGA (640 x 480), CIF (352 x 240)
Frame Rate[2]	Main Stream: 8MP (3840 x 2160) at 30 fps
	Sub Stream 1: D1 at 30 fps
	Sub Stream 2: 1080p at 30 fps
Bit Rate Control	CBR/VBR
Bit Rate	H.264: 32 Kbps to 8192 Kbps H.265: 32 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, Gain Priority, Shutter Priority
Noise Reduction	3D DNR
Motion Detection	Off, On (4 Zones, Rectangular)
Region of Interest	Off, On (4 Zones)
Advanced Features	Smart IR, Defog
Flip	0°, 90°, 180°, 270°
Mirror	Off, On
Privacy Masking	Off, On (8 Areas, Rectangular)

Audio

Compression	PCM, G.711A, G.711Mu, G.726, G.723

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, ICMP, IGMP, 802.1x
Interoperability	ONVIF Profile S, G, T; CGI; P2P
Auto Register	Support
Streaming Method	Unicast, Multicast
Maximum User Access	20 Users (Total bandwidth: 80 Mbps)
Edge Storage	Network Attached Storage (NAS) FTP, SFTP Micro SD Slot, maximum 256 GB
Web Viewer	IE (Version 8 and higher), Chrome, Firefox, Safari (Version 12 and higher)
Management Software	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	UL60950-1 CAN/CSA C22.2 No.60950-1-07 EN60950-1
Electromagnetic Compatibility (EMC)	FCC CFR 47 Part 15 Subpart B Electromagnetic Compatibility Directive 2014/30/EU

Interface

Audio	Input: One (1) Channel, RCA Output: One (1) Channel, RCA
Alarm	Input: Two (2) Channels (5 mA, 3 VDC to 5 VDC) Output: One (1) Channel (300 mA, 12 VDC)

Electrical

Power Supply		12 VDC (±30%), PoE (IEEE 802.3af, Class 0), or ePoE
Power Consumption	12 VDC	Standard: 6.4 W Maximum: 7.1 W
	PoE	Standard: 6.9 W Maximum: 7.9 W

Environmental

Operating Conditions	−30° C to +60° C (−22° F to +140° F), 10% to 95% RH
Storage Conditions	−30° C to +60° C (−22° F to +140° F)
Ingress Protection	IP67
Vandal Resistance	IK10

Construction

Casing	Metal and Plastic
Dimensions	273.20 mm x 95.0 mm x 95.0 mm (10.76 in. x 3.74 in. x 3.74 in.)
Net Weight	1.11 kg (2.44 lb)
Gross Weight	1.51 kg (3.33 lb)

Analytics+ Functions[3]

Smart Plan Schedule	Enable Analytics+ functions depending on a user-defined schedule. Allows the camera to switch analytic functions based on time.

Perimeter Protection	• 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.
	• Monitors a combination of detection methods.
	• Search and retrieve video based on target type.

People Counting	• Delivers accurate flow statistics from the following methods:
	  Line Crossing: counts a person as they cross a threshold in a defined direction.
	  Region: counts the number of people in a defined area.
	• Counts people simultaneously from four (4) threshold lines and four (4) defined regions[3].

Queue Management	• Monitors four (4) user-defined regions where people wait in line (or queue). Issues an alarm for the following triggers:
	  People in Line: the number of people in line exceeds a minimum threshold.
	  Wait Time: time a person waits in line is greater than the minimum queue time.

Face Detection	• Detects and captures a snapshot of a human face within a scene.
Smart Motion Detection[3]	• Differentiates between and classifies human and vehicle objects. • Filters false alarms due to leaves, lights, animals, and other inconsequential objects. • Extracts human or vehicle objects from recorded video for quick target search and retrieval.

Recommended Detection Distance		Human	Vehicle
	Wide	Up to 40.0 m (131.23 ft)	Up to 75.0 m (246.06 ft)
	Telephoto	Up to 10.0 m (32.81 ft)	Up to 15.0 m (49.21 ft)

Intelligent Video System Functions

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

Standard Features	• Tampering with the camera. • Error writing to an onboard Micro SD card. • Error sending or receiving data over the network. • Unauthorized access to the camera. • IP Address Conflict

Premium Features

Missing Object	An object is missing from a designated area.
Abandoned Object	An object is placed in a designated area where no object should be.
Scene Change	A person or object moves the camera to change the scene or covers the camera to obscure the scene.
Fast Moving	Target exceeds a set speed when exiting a defined area
Parking Detection	Vehicle remains in a defined area without motion for a set period of time.
Crowd Gathering	Specified number of people remain inside a defined area for a set time.
Loitering Detection	Target is in motion inside a defined area longer than a specified amount of time.
Heat Map	Generates a visual representation of data.

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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.

2. The video frame rates listed are the maximum rates for each stream. The actual video rates are subjected to the total encoding capacity.

3. 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

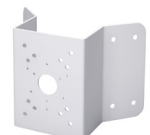| Type	Part Number	Description
Analytics+ Camera	N85DB6Z	8MP ePoE Starlight+ Vari-focal Bullet Camera
Mounting Accessories, optional	PFA121	Junction Box
	PFA151	Corner Mount (use with PFA121 Junction Box)
	PFA152-E	Pole Mount (use with PFA121 Junction Box)
	DH-PFM321D-US	12 VDC, 1 A Power Adapter
ePoE Accessories, optional	LR1002	EoC Passive Converter
	LR1002-1EC	Single-port EoC Receiver

Accessories

Optional:

PFA121
Junction Box

PFA152-E
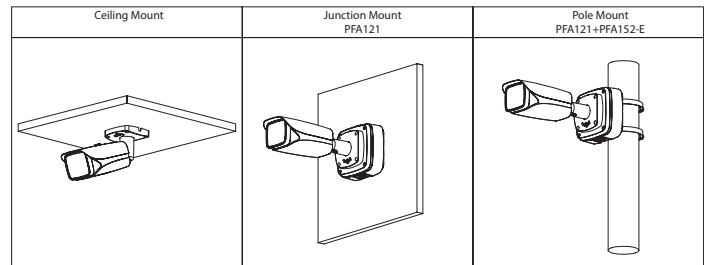Pole Mount

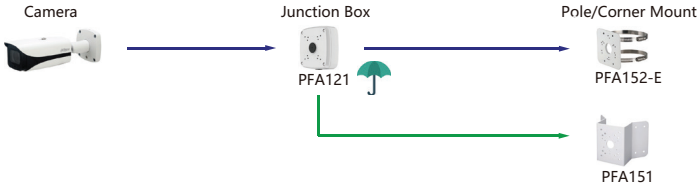PFA151
Corner Mount

DH-PFM321D-US
Power Adapter

LR1002
EoC Passive Converter

LR1002-1EC
Single-port EoC Receiver

Ceiling Mount	Junction Mount PFA121	Pole Mount PFA121+PFA152-E

Mounting Diagram

Camera   Junction Box   Pole/Corner Mount

PFA121

PFA152-E

PFA151

Dimensions

273.2 [10.76"]

174.7 [6.88"]

100.0 [3.94"]

95.0 [3.74"]

88.9 [3.5"]

79.7 [3.14"]

95.0 [3.74"]

95.0 [3.74"]

95.0 [3.74"]

70.0 [2.76"]

70.0 [2.76"]

4-⌀4.5 [⌀0.18"]

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