4MP Night Color 2.0 Network Dome Camera

ePoE Vari-focal Lens Network Camera with Analytics+

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 4 MP ePoE Night Color camera offers Analytics+ functions at the edge – performing complex real-time perimeter protection surveillance, Smart Motion Detection, and face detection. 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 — Night Color Technology and Ultra Wide Dynamic Range allow the camera to operate in any lighting condition and the IP67 rating makes the camera suitable for 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.

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.

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.

- 1/1.8-in. 4 MP Progressive-scan CMOS Sensor
- Triple-stream Encoding
- AI Coding, Smart H.265+ and Smart H.264+ Video Compression
- 4 MP (2688 x 1520) at 30 fps, 2.7 mm to 12 mm Motorized Lens
- Ultra Wide Dynamic Range (140 dB)
- Built-in Microphone and Speaker
- Analytics+ Functions — People Counting, Perimeter Protection, Smart Motion Detection+, and Face Detection
- Night Color Technology with White-light LEDs for Color Images in Total Darkness
- Enhanced Power and Data Transmission Distances (ePoE)
- IP67 Ingress Protection and IK10 Vandal Resistance
- Five-year Warranty*

Night Color Technology

The Night Color camera incorporates white-light LEDs to offer full-color images in total darkness, as well as an effective visual deterrent. This technology provides smart illumination where the camera automatically activates the white-light illuminators when ambient light levels fall and adjusts exposure time and LED intensity to prevent overexposing the image.

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.

Ultra Wide Dynamic Range

For applications with both bright and low lighting conditions that change quickly, Ultra WDR (140 dB) optimizes both the bright and dark areas of a scene at the same time to provide usable video.

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 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.

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

Technical Specification

Camera

Image Sensor	1/1.8-in. 4 MP Progressive-scan 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
S/N Ratio	> 56 dB
Minimum Illumination	Color: 0.0005 lux at F1.0
Illuminator Type	White-light LED
Illumination Distance	40.0 m (131.23 ft)
Illuminator Control	Automatic, Manual, Zoom Priority, Off
Illuminators	Three (3)

Lens

Lens Type	Motorized Vari-focal
Mount Type	ø14
Focal Length	2.7 mm to 12 mm
Maximum Aperture	F1.0
Angle of View	Horizontal: 48° to 115° Vertical: 27° to 59° Diagonal: 55° to 142°
Iris Type	Automatic
Close Focus Distance	1.75 m (5.74 ft)

	Lens	Detect (8 ppf)	Observe (19 ppf)	Recognize (38 ppf)	Identify (76 ppf)
DORI[1] Distance	Wide	60.4 m (198.2 ft)	24.1 m (79.1 ft)	12.0 m (39.4 ft)	6.0 m (19.7 ft)
	Tele	128.6 m (421.9 ft)	51.4 mm (168.6 ft)	25.7 m (84.3 ft)	12.8 m (42.0 ft)

Installation Angle

Range	Pan: 0˚ to 355˚ Tilt: 0˚ to 80˚ Rotation: 0˚ to 355˚

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		4 MP (2688 x 1520), 2560 x 1440, 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
	Sub Stream 1	D1 (704 x 480) at 30 fps
	Sub Stream 2	1080p (1920 x 1080) at 1 fps
Bit Rate Control		CBR/VBR
Bit Rate		H.264: 32 Kbps to 8192 Kbps H.265: 12 Kbps to 8192 Kbps
Day/Night		Color, B/W
BLC Mode		BLC, HLC, Ultra WDR (140 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)
Region of Interest		Off, On (4 Zones)
Advanced Features		Defog
Image Rotation		0°, 90°, 180°, 270°
Mirror		Off, On
Privacy Masking		Off, On (8 Areas, Rectangular)

Audio

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

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/Profile G/Profile T); CGI; Milestone; Genetec; P2P
Streaming Method	Unicast / Multicast
Maximum User Access	20 Users (Total bandwidth: 80 Mbps)
Edge Storage	Network Attached Storage (NAS) FTP, SFTP Micro SD Card Slot, maximum 256 GB
Web Viewer	IE (Version 8 and higher), Chrome, Firefox
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 EN62368-1
Electromagnetic Compatibility (EMC)	CFR 47 FCC Part 15 Subpart B Electromagnetic Compatibility Directive 2014/30/EU

Interface

Audio	Input	One (1) Channel, RCA plus a built-in Microphone
	Output	One (1) Channel, RCA plus a built-in Speaker
Alarm	Input	One (1) Channel, 5mA 3V to 5V DC
	Output	One (1) Channel, 300mA, 12V DC

Electrical

Power Supply		12 VDC ±30%, PoE (IEEE 802.3af, Class 0), or ePoE
Power Consumption	Basic	12 VDC: 2.2 W PoE: 2.8 W
	Maximum	12 VDC: 9.5 W PoE: 10.5 W

Environmental

Operating Conditions	–30° C to +60° C (–22° F to +140° F), Less than 95% RH
Storage Conditions	–40° C to +60° C (–40° F to +140° F),
Ingress Protection	IP67
Vandal Resistance	IK10

Construction

Casing	Metal
Dimensions	ø126.0 mm x 105.0 mm (ø4.13 in. x 4.96 in.)
Net Weight	0.72 kg (1.59 lb)
Gross Weight	0.93 kg (2.05 lb)

Analytics+ Functions[2]

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.
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+	• 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	Up to 10.0 m (32.81 ft)
Recommended Detection Distance — Vehicle	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.

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

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. 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.

Ordering Information

Type	Part Number	Description
Analytics+ Camera	N45EYNZ	4 MP ePoE Night Color Vari-focal Lens Dome Camera with Analytics+
Accessories, optional	DH-PFA109	Mount Adapter
	PFA123	Junction Box
	PFA137	Junction Box
	PFA151	Corner Mount (use with DH-PFA109 and PFB305W)
	PFA152-E	Pole Mount (use with PFB203W wall mount)
	PFA200W	Rain/Sun Shield (use with PFA137 Junction Box)
	PFB203W	Wall Mount (use alone or with PFA152-E)
	PFB220C	Ceiling Mount (use with DH-PFA109 mount adapter)
	PFB305W	Wall Mount (use with DH-PFA109 and PFA150 or PFA151)
	DH-PFM321D-US	12 VDC, 1 A Power Adapter
ePoE Accessories, optional	LR1002	EoC Passive Converter
	LR1002-1EC	Single-port EoC Receiver

Accessories

Optional:

DH-PFA109
Mount Adapter

PFA123
Junction Box

PFA137
Junction Box

PFA150
Pole Mount

PFA151
Corner Mount

PFA152-E
Pole Mount

PFA200W
Sun/Rain Shield

PFB203W
Wall Mount

PFB220C
Ceiling Mount

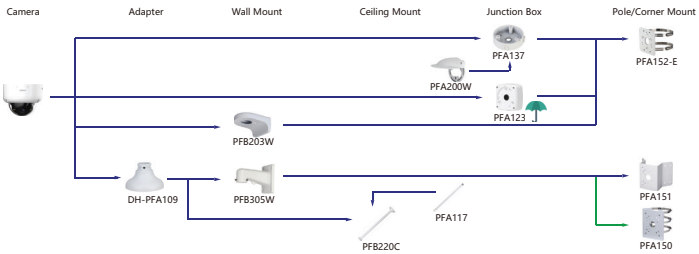
PFB305W
Wall Mount

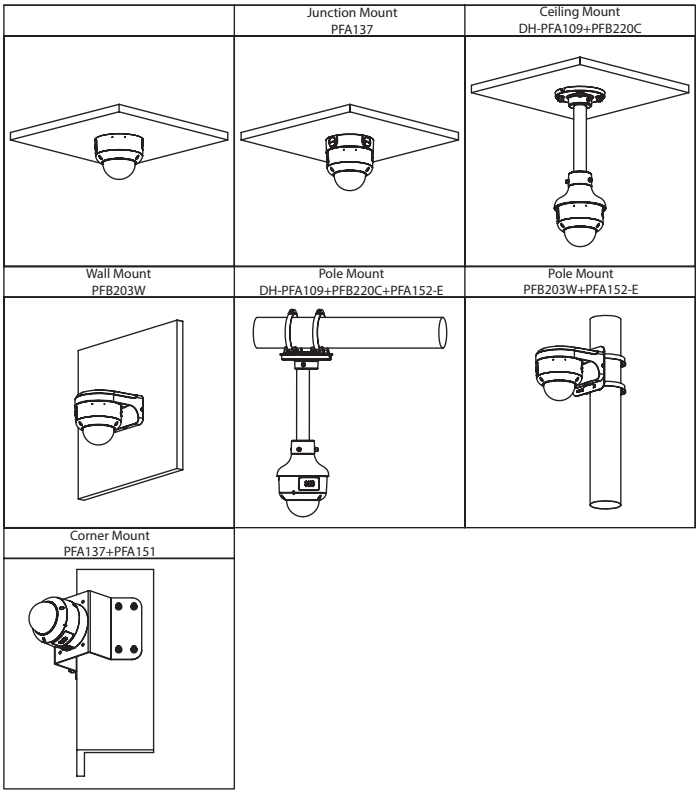
DH-PFM321D-US
12 VDC, 1 A
Power Adapter

LR1002
EoC Passive
Converter

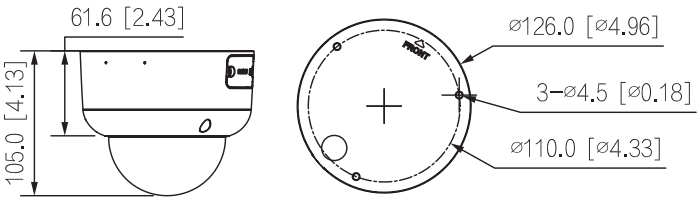
LR1002-1EC
Single-port EoC
Receiver

Mounting Diagram





Dimensions



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