

4MP ePoE Network Dome Camera

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



System Overview

The Dahua 4 MP ePoE camera offers Analytics+ functions at the edge – performing complex real-time face recognition, people counting, and perimeter protection surveillance. 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 — Ultra 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

Face Recognition

The camera includes human facial feature extraction, real-time facial snapshots, and supports a database of up to 200,000 face images and five (5) libraries. The feature enables a pro-active way to identify persons of interest before an incident occurs. The advanced processor extracts and categorizes various features, including age, gender, expression, and whether the target face wears glasses or sports facial hair. The camera is ideal for applications that require entrance/exit management, where knowing who is coming and going is a valuable asset.

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.

- 1/1.8-in. 4 MP Progressive-scan CMOS Sensor
- Five-stream Encoding
- Smart H.265+ and Smart H.264+ Dual Codec
- 4 MP (2688 x 1520) at 60 fps Maximum Resolution
- 2.7 mm to 12 mm Motorized Vari-focal Lens
- Enhanced Power and Data Transmission Distances (ePoE)
- Analytics+ Functions Face Recognition, People Counting, Perimeter Protection, and Image Attribute Extraction
- Ultra Wide Dynamic Range (140 dB) and Day/Night IR Cut Filter
- Maximum IR LED Distance 40 m (131.23 ft)
- IP67 Ingress Protection and IK10 Vandal Resistance
- Five-year Warranty*



Image Attribute Extraction

Analytics+ allows the camera to classify images in a video stream and then extract and store attributes and features for a specific image. The camera can distinguish between vehicle and human objects, track the object in real-time, and extract attributes, such as vehicle type, color, and make; or gender, clothing color, and facial attributes for people.

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. For new installations, ePoE offers the ability to design long-distance applications without the need for additional repeaters.

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.

Environmental

Dahua cameras operate in extreme temperature environments, rated for use in temperatures from -40° C to $+60^{\circ}$ C (-40° F to $+140^{\circ}$ F). 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.



Technical Specification

Camera					
Image Senso	or	1/1.8-in. 4 MP CMOS			
Effective Pixels		2688(H) x 152	0(V)		
RAM/ROM		2 GB / 16 GB			
Scanning Sy	stem	Progressive			
Electronic S	hutter Speed	Auto, Manual,	1/3 s to 1/100,0	000 s	
Minimum Ill	umination	Color: 0.001 lu 0 lux at F1.2 (v	ux at F1.2 (1/3 s, with IR on)	30 IRE)	
S/N Ratio					
IR Distance		Distance up to	0 40.0 m (131.23	ft)	
IR On/Off Co	ontrol	Auto, Manual			
IR LEDs		Three (3)			
Lens					
Lens Type		Electric Zoom			
Mount Type		Module Interf	ace		
Focal Length	า	2.7 mm to 12	mm		
Max. Apertu	ıre	F1.2			
Angle of Vie	w	Horizontal: 111° to 47° Vertical: 59° to 26° Diagonal: 135° to 51°			
Optical Zoom		4x			
Aperture Control		Auto			
Close Focus Distance		Wide: 1.0 m (3.29 ft) Tele: 2.50 m (8.20 ft)			
	Lens	Detect (8 ppf)	Observe (19 ppf)	Recognize (38 ppf)	Identify (76 ppf)
DORI Distance ¹	Wide	60.10 m (187.18 ft)	24.0 m (78.74 ft)	12.0 m (39.37 ft)	6.0 m (19.69 ft)
	Telephoto	128.60 m (421.92 ft)	51.40 m (168.64 ft)	25.70 m (84.32 ft)	12.80 m (41.99 ft)
Installatio	on Angle				
Range		Pan: 0° to 355°; Tilt: 0° to 80°; Rotation: 0° to 355°			
Video					
Compressio	n	Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (sub stream only)			
Streaming C	apability	Five (5) 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)			
		Main Stream: 4 MP (2688 x 1520) at 60 fps			
Frame Rate		Sub Stream 1: 704 x 576 at 30 fps			
		Sub Stream 2: 1080p (1920 x 1080) at 30 fps			
		Sub Stream 3: 1080p (1920 x 1080) at 30 fps			
		Sub Stream 4: 704 x 576 at 30 fps			
Bit Rate Con	trol	CBR/VBR			
Bit Rate		H.264: 32 Kbps to 10240 Kbps H.265: 12 Kbps to 10240 Kbps			
Day/Night		Auto (ICR), Color, B/W			
BLC Mode		BLC, HLC, Ultra WDR (140 dB), SSA			

 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.

White Balance		Auto, Natural, Street Lamp, Outdoor, Manual, Regional Custom		
Gain Control		Auto, Manual		
Noise Reduction		3D DNR		
Motion Detecti	on	Off, On (4 Zones, Rectangular)		
Region of Intere	est	Off, On (4 Zones)		
Advanced Feat	ures	Electronic Image Stabilization (EIS), Smart IR, Defog		
Flip		$0^\circ, 90^\circ, 180^\circ, 270^\circ$ (supports 90° and 270° with 1080p resolution or lower)		
Mirror		Off, On		
Privacy Maskin	g	Off, On (4 Areas, Rectangular)		
Audio				
Compression		G.711a, G.711Mu, AAC, G.726		
Network				
Ethernet		RJ-45 (100/1000 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 and G, CGI, P2P, RTMP		
Streaming Met	hod			
Maximum User	Access	20 Users		
Edge Storage		Network Attached Storage (NAS) FTP, SFTP Micro SD Slot, maximum 256 GB		
Web Viewer		IE (Version 9 and higher), Chrome (Version 42 and higher), Firefox (Version 48.0.2 or higher)		
Management Software		SmartPSS, DSS Pro, IVSS		
Mobile Operating System		IOS, Android		
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				
Video		One (1) Channel CVBS, BNC (for adjustment only)		
Audio		Input: One (1) Channel Output: One (1) Channel		
Alarm		Input: Three (3) Channels (5 mA, 5 VDC) Output: Two (2) Channels 1000 mA, 30 VDC 500 mA, 50 VAC		
RS485		One (1) Port (Bit rate: 1200 bps to 115200 bps)		
Electrical				
Power Supply		12 VDC, 24 VAC, or PoE (IEEE 802.3af, Class 0)		
FF 7	12 VDC	Standard: 5.4 W with IR and ICR ON: 16.7 W		
Power Consumption	24 VAC	Standard: 5.0 W with IR and ICR ON: 15.7 W		
	PoE	Standard: 4.9 W with IR and ICR ON: 15.6 W		

Environmental

2			
Operating Temperature		–40° C to +60° C (–40° F to +140° F), $\leq 95\%$ RH	
Storage Temper	rature	-40° C to $+60^\circ$ C (-40° F to $+140^\circ$ F), $\leq 95\%$ RH	
Ingress Protecti	ion	IP67	
Vandal Resistan	ice	IK10	
Construction			
Casing		Metal and Plastic	
Dimensions	Camera	ø157.90 mm x 129.10 mm (ø6.22 in. x 5.08 in.)	
Package		212.0 mm x 212.0 mm x 200.0 mm (8.35 in. x 8.35 in. x 7.87 in.)	
Net Weight			
Gross Weight		1.60 kg (3.53 lb)	

Analytics+ Functions²

Face Recognition	 Supports five group libraries that store up to 200,000 faces on the camera. Captures faces, compares to stored images, and produces match statistics. Extracts six attributes and eight expressions from a face capture. Offers face enhancement, face exposure, and a face angle filter for clear facial images.
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. Produces daily, monthly, and annual reports for both methods.
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. Includes fast-moving, loitering, parking, and people gathering detection.
Image Attribute Extraction	 Distinguishes between motor vehicle, non-motor vehicle, and human targets. Optimizes images and takes a snapshot of each target. Extracts attributes specific to a target: Vehicles: make, color, type Human: gender, face attributes, clothing colors

Intelligent Video System Functions²

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		
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.	

 The Face Capture, Perimeter Protection, and IVS functions cannot be used at the same time, only one Analytics+ or IVS function can be used at a time. In addition, the Smart H.265+ and the Smart H.264+ cannot be used simultaneously with either an Analytics+ or an IVS feature.

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

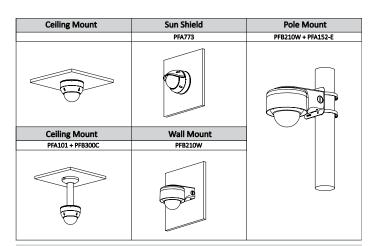
ePoE supply voltage 53 V Maximum DC resistance < 5 Ω/100 m

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

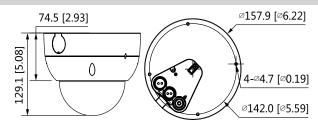


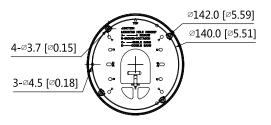
Ultra Series | DH-IPC-HDBW7442H-ZFR

Ordering Information					
Part Number	Description				
DH-IPC- HDBW7442H-ZFR	4 MP ePoE Vari-focal Dome Camera				
PFA101	Mount Adapter				
PFA152-E	Pole Mount (for use with PFB210W wall mount)				
PFB210W	Wall Mount				
PFB300C	Ceiling Mount (for use with PFA101 mount adapter)				
PFA773	Sun Shield				
DH-PFM320D-US	12 VDC, 2 A Power Adapter				
LR1002	EoC Passive Converter				
LR1002-1EC	Single-port EoC Receiver				
	DH-IPC- IDBW7442H-ZFR PFA101 PFA152-E PFB210W PFB300C PFB300C PFA773 DH-PFM320D-US LR1002				



Dimensions (mm/in.)





Accessories

Optional:



PFA101 Mount Adapter



PFB300C Ceiling Mount



LR1002 EoC Passive Converter



PFA152-E Pole Mount



PFA773 Sun Shield



LR1002-1EC Single-port EoC Receiver





DH-PFM320D-US Power Adapter

