

# 4MP Starlight Network Dome Camera

True Wide Dynamic Network Camera with Smart Motion Detection







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)
- Enhanced Power and Data Transmission Distances (ePoE)
- ArcticPro Series Camera Operational down to -40° C (-40° F)
- IP67 Ingress Protection and IK10 Vandal Resistance
- 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  $-40^{\circ}$  C ( $-40^{\circ}$  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.

#### 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. The camera offers a wide voltage range, with a 30% input voltage tolerance, suitable for external applications with unstable power sources.



Camera	Technical S	pecificati	ion				
Effective Pixels	Camera						
Scanning System							
Scanning System	Effective Pixels		2688(H) x 1520				
Scanning System	RAM/ROM						
Electronic Shutter Speed		m					
Minimum Illumination   Color: 0.005 lux at F1.6   0 lux at				1/3 s to 1/100 i	000 s		
S/N Ratio   > 56 dB					500 5		
IR Distance	Minimum Illum	ination					
IR On/Off Control	S/N Ratio		> 56 dB				
Lens				.64.04 ft)			
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* Vertical: 55* Diagonal: 122*           Close Focus Distance         0.90 m (2.95 ft)           DORI Distance*         Lens         Detect         Observe Recognize Identify           DORI Distance*         2.8 mm         56.0 m 22.40 m (13.20 m (36.75 ft)         5.60 m (18.37 ft)           Installation Angle         Pan: 0* to 355* Tilt: 0* to 65* Rotation: 0* to 355*           Video         Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (Sub Stream only)           Streaming Capability         Three (3) Streams           4 MP (2688 x 1520), 3 MP (2304 x 1296), 1080 p (1920 x 1080), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480), VGA (640 x 480), VG	IR On/Off Conti	rol	Auto, Manual				
Lens Type	IR LEDs		Three (3)				
Iris Type	Lens						
Mount Type         M12           Focal Length         2.8 mm           Maximum Aperture         F1.6           Angle of View         Horizontal: 103* Vertical: 55* Diagonal: 122*           Close Focus Distance         0.90 m (2.95 ft)           DORI Distance*         Lens         Detect         Observe         Recognize         Identify           DORI Distance*         2.8 mm         56.0 m (183.73 ft)         11.20 m (36.75 ft)         5.60 m (18.37 ft)           Installation Angle         Pan: 0* to 355* Tilt: 0* to 65* Rotation: 0* to 355*         7.11* Of to 65* Rotation: 0* to 355*           Video         Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (Sub Stream only)           Streaming Capability         Three (3) Streams           4 MP (2688 x 1520), 3 MP (2304 x 1296), 1080p (1920 x 1080), 1.3 MP (1280 x 960), 720p (1280 x 720), DI (704 x 480), VGA (640 x 480), CIF (352 x 240)           Main Stream: 4 MP (2688 x 1520) at 30 fps           Sub Stream 1: D1 (704 x 480) at 30 fps           Sub Stream 2: 720p (1280 x 720) at 30 fps           Bit Rate         H.264: 3 Kbps to 8192 Kbps           Day/Night         Auto (ICR), Color, B/W							
Focal Length   2.8 mm							
Maximum Aperture         F1.6           Angle of View         Horizontal: 103° Vertical: 55° Diagonal: 122°           Close Focus Distance         0.90 m (2.95 ft)           DORI Distance*         Lens         Detect         Observe         Recognize         Identify           DORI Distance*         2.8 mm         56.0 m (183.73 ft)         11.20 m (36.75 ft)         5.60 m (18.37 ft)           Installation Angle         Pan: 0° to 355° Tilt: 0° to 65° Rotation: 0° to 355°         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           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), UF (352 x 240)           Resolution         Main Stream: 4 MP (2688 x 1520) at 30 fps           Frame Rate         Sub Stream 1: D1 (704 x 480) at 30 fps           Sub Stream 2: 720p (1280 x 720) at 30 fps           Bit Rate Control         CBR/VBR           Bit Rate         H.264: 3 Kbps to 8192 Kbps           Day/Night         Auto (ICR), Color, B/W							
Horizontal: 103°   Vertical: 55°   Diagonal: 122°		rture					
Lens		Horizontal: 103°  f View Vertical: 55°					
DORI Distance   2.8 mm   56.0 m	Close Focus Dis	tance	0.90 m (2.95 ft)				
2.8 mm (183.73 ft) (73.49 ft) (36.75 ft) (18.37 ft)  Installation Angle  Range Pan: 0* to 355* Tilt: 0* to 65* Rotation: 0* to 355* 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  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 30 fps  Frame Rate Sub Stream 1: D1 (704 x 480) at 30 fps  Sub Stream 2: 720p (1280 x 720) at 30 fps  Bit Rate Control CBR/VBR  Bit Rate H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps Day/Night Auto (ICR), Color, B/W		Lens	Detect	Observe	Recognize	Identify	
Range       Pan: 0* to 355* Tilt: 0* to 65* Rotation: 0* to 355*         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         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 30 fps         Frame Rate       Sub Stream 1: D1 (704 x 480) at 30 fps         Sub Stream 2: 720p (1280 x 720) at 30 fps         Bit Rate Control       CBR/VBR         Bit Rate       H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps         Day/Night       Auto (ICR), Color, B/W	DORI Distance <sup>1</sup>	2.8 mm					
Range         Tilt: 0* to 65* Rotation: 0* to 355*           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           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 30 fps           Frame Rate         Sub Stream 1: D1 (704 x 480) at 30 fps           Sub Stream 2: 720p (1280 x 720) at 30 fps           Bit Rate Control         CBR/VBR           Bit Rate         H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps           Day/Night         Auto (ICR), Color, B/W	Installation	Angle					
Compression         Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (Sub Stream only)           Streaming Capability         Three (3) Streams           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 30 fps           Frame Rate         Sub Stream 1: D1 (704 x 480) at 30 fps           Sub Stream 2: 720p (1280 x 720) at 30 fps           Bit Rate Control         CBR/VBR           Bit Rate         H.264: 3 Kbps to 8192 Kbps           H.265: 3 Kbps to 8192 Kbps           Day/Night         Auto (ICR), Color, B/W	Range	_	Tilt: 0° to 65°	355°			
H.264H, MJPEG (Sub Stream only)   Streaming Capability	Video						
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 30 fps         Frame Rate       Sub Stream 1: D1 (704 x 480) at 30 fps         Sub Stream 2: 720p (1280 x 720) at 30 fps         Bit Rate Control       CBR/VBR         Bit Rate       H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps         Day/Night       Auto (ICR), Color, B/W	Compression					н.264В,	
Resolution       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 30 fps         Frame Rate       Sub Stream 1: D1 (704 x 480) at 30 fps         Sub Stream 2: 720p (1280 x 720) at 30 fps         Bit Rate Control       CBR/VBR         Bit Rate       H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps         Day/Night       Auto (ICR), Color, B/W	Streaming Capa	bility	Three (3) Streams				
Frame Rate         Sub Stream 1: D1 (704 x 480) at 30 fps           Sub Stream 2: 720p (1280 x 720) at 30 fps           Bit Rate Control         CBR/VBR           Bit Rate         H.264: 3 Kbps to 8192 Kbps           H.265: 3 Kbps to 8192 Kbps           Day/Night         Auto (ICR), Color, B/W	Resolution		1080p (1920 x 1080), 1.3 MP (1280 x 960), 720p (1280 x 720), D1 (704 x 480),				
Sub Stream 2: 720p (1280 x 720) at 30 fps  Bit Rate Control  Bit Rate  H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps  Day/Night  Auto (ICR), Color, B/W			Main Stream: 4 MP (2688 x 1520) at 30 fps				
Bit Rate Control  CBR/VBR  H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps  Day/Night  Auto (ICR), Color, B/W	Frame Rate		Sub Stream 1: D1 (704 x 480) at 30 fps				
Bit Rate  H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps  Day/Night  Auto (ICR), Color, B/W			Sub Stream 2: 720p (1280 x 720) at 30 fps				
H.265: 3 Kbps to 8192 Kbps  Day/Night Auto (ICR), Color, B/W	Bit Rate Control		CBR/VBR				
,, ,	Bit Rate						
BLC Mode BLC, HLC, True WDR (120 dB), SSA	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, Gain Priority, Shutter Priority, Manual
Noise Reduction	3D DNR
Motion Detection	Off, On (4 Zones, Rectangular)
Region of Interest	Off, On (4 Zones)
Advanced Features	Smart IR, Smart-scene Adaptive (SSA)
Image Rotation	0°, 90°, 180°, 270° (supports 90°, 270° at 1920 x 1080 resolution)
Mirror	Off, On
Privacy Masking	Off, On (4 Areas, Rectangular)
Audio	
Compression	G.711a, G.711Mu, AAC, 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
Auto Register	Support
Streaming Method	Unicast / Multicast
Maximum User Access	20 Users (total bandwidth: 64 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
Certifications	
Safety	UL 60950-1 & CAN/CSA C22.2 No. 60950-1-07 EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 IEC 60950-1:2005 (Second Edition)
Electromagnetic Compatibility (EMC)	EN 55032:2015, Class B; EN 61000-3-2:2014; EN 61000-3-3:2013; EN 55024:2010+A1:2015; EN 55035:2017; EN 50130-4:2011+A1:2014
Interface	
Audio	Input: One (1) Channel, RCA Output: One (1) Channel, RCA
Alarm	Input: One (1) Channel (5 mA, 3 to 5 VDC) Output: One (1) Channel (300 mA, 12 VDC)
Electrical	
Power Supply	12 VDC, ePoE, or PoE (IEEE 802.3af, Class 0)
Power Consumption	< 7.3 W

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	$-40^{\circ}$ C to +60° C ( $-40^{\circ}$ 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	Ø109.90 mm x 81.0 mm (4.33 in. x 3.19 in.)

# Analytics+ Functions

Net Weight

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 nine (9) detection methods. Search and retrieve video based on target type.
Smart Motion Detection <sup>3</sup>	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.

0.378 kg (0.83 lb)

# 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**

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.

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

# **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

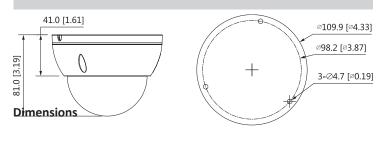
## Via RG-59 Coaxial Cable

ePoE supply voltage 53 V Maximum DC resistance  $< 5 \Omega/100 \text{ m}$ 

	•			
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				
Туре	Part Number	Description		
4 MP Camera	N43AL52-B	4 MP Starlight Fixed Lens Dome Camera with Smart Motion Detection, Black		
	PFA106	Mount Adapter		
	PFA136	Junction Box		
	DH-PFA136-B	Junction Box, Black		
	PFA151	Corner Mount (Use with PFA106 and PFB305W)		
	DH-PFA151-B	Corner Mount, Black (Use with PFA106 and PFB305W)		
	PFA152-E	Pole Mount (Use with PFB203W Wall Mount)		
	DH-PFA152-E-B	Pole Mount, Black (Use with PFB203W-B Wall Mount)		
Accessories,	PFA200G	Gang Box Adapter		
optional	PFA200W	Sun/Rain Shield (Use with PFB203W Wall Mount)		
	PFB203W	Wall Mount (Use alone or with PFA152-E Pole Mount)		
	DH-PFB203W-B	Wall Mount, Black (Use alone or with PFA152-E-B Pole Mount)		
	PFB220C	Ceiling Mount (Use with PFA106 Mount Adapter)		
	PFB305W	Wall Mount (Use with PFA106 Mount Adapter)		
	DH-PFM321D-US	12 VDC, 1 A Power Adapter		
	PC-H45-D84.8	Polycarbonate Smoke Tinted Bubble		

Junction Mount	Wall Mount	Wall Mount	Pole Mount
DH-PFA136-B	PFA136+PFA200W	DH-PFB203W-B	DH-PFB203W-B+DH-PFA152-E-B
		8	
Ceiling Mount			
PFA106+PFB220C			



# Accessories

Optional:



PFA106 Mount Adapter



PFA136 Junction Box



DH-PFA136-B Junction Box



PFA151 Corner Mount



DH-PFA151-B Corner Mount



PFA152-E Pole Mount



DH-PFA152-E Pole Mount



PFA200G Gang Box Adapter



PFA200W Sun/Rain Shield



PFB203W Wall Mount



DH-PFB203W-B Wall Mount



PFB220C Ceiling Mount



PFB305W Wall Mount



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



PC-H45-D84.8 Polycarbonate Smoke Tinted Bubble

