5MP Enhanced Starlight Network Dome Camera (Vari-focal)
True Wide Dynamic Network Camera with Smart Motion Detection+

- 1/2.7 in. 5MP Progress-scan CMOS Sensor
- Triple-stream Encoding
- AI Coding, Smart H.265+ and Smart H.264+ Dual Codec
- 5MP (2960 x 1668) at 20 fps
- 2.7 mm to 13.5 mm Motorized Vari-focal Lens
- Enhanced Starlight Technology for Low-light Applications
- Analytics+ Function: Perimeter Protection, Smart Motion Detection+
- True Wide Dynamic Range (120 dB), Day/Night IR Cut Filter
- Maximum IR LED Distance of 40.0 m (131.23 ft)
- Built-in Microphone
- AI Scene Self-adaptation (AI SSA)
- IP67 Ingress Protection, IK10 Vandal Resistance
- Five-year Warranty*

Wiz Sense

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 security for small to medium size businesses at a sensible price.

System Overview

The Dahua 5MP Enhanced Starlight Network Dome Camera (Vari-focal) is ideal for a host of diverse applications. The camera has Smart Motion Detection+ which improves alarm accuracy for Tripwire and Intrusion functions. The camera also has Enhanced Starlight, True Wide Dynamic Range, and IR illumination to allow the camera to operate in any lighting condition. The camera 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 fewer 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.

AI Scene Self-adaptation (AI SSA)
AI SSA (AI Scene Self-adaptation) adopts deep learning algorithms to detect environmental conditions, such as rain, fog, backlight, low light and flicker, to adjust the parameters of the image to suit the conditions, ensuring that clear images are always produced.

Enhanced Starlight Technology
For challenging low-light applications, Dahua's Starlight Ultra-low Light Technology offers best-in-class light sensitivity, capturing color details in lighting as low as 0.005 lux. The camera uses a set of optical features to balance light throughout the scene, resulting in clear images in dark environment.

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.

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.

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° C (–40° 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.

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.

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

Technical Specification

Camera

Image Sensor	1/2.7-in. 5MP CMOS
Effective Pixels	2960 (H) x 1668 (V)
RAM/ROM	512 MB/128 MB
Scanning System	Progressive
Electronic Shutter Speed	1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.005 lux at F1.5 B/W: 0.0005lux at F1.5 0 lux at F1.5 (IR on)
S/N Ratio	> 56 dB
IR Distance	Up to 40.0 m (131.23 ft)
IR On/Off Control	Auto, Manual
IR LEDs	Three (3)

Lens

Lens Type	Motorized Vari-focal
Iris Type	Fixed Aperture
Mount Type	M14
Focal Length	2.7 mm to 13.5 mm
Maximum Aperture	F1.5
Angle of View	Horizontal: 114° to 32° Vertical: 58° to 17° Diagonal: 138° to 36°
Close Focus Distance	0.80 m (2.62 ft)

DORI Distance[1]	Focus	Detect	Observe	Recognize	Identify
	Wide	64.00 m (209.97 ft)	25.60 m (83.99 ft)	12.80 m (41.99 ft)	6.40 m (21.0 ft)
	Tele	210.0 m (688.98 ft)	84.0 m (275.60 ft)	42.0 m (137.80 ft)	21.0 m (68.90 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	5MP (2960 x 1668),4MP (2688 x 1520), 3MP (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	Main Stream	5MP (2960 x 1668) at 20 fps
	Sub Stream 1	D1 (704 x 480) at 30 fps
	Sub Stream 2	1080p (1920 x 1080) at 30 fps

Bit Rate Control	CBR/VBR
Bit Rate	H.264: 3 Kbps to 8192 Kbps H.265: 3 Kbps to 8192 Kbps
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)
Image Rotation	0°, 90°, 180°, 270° (Supports 90°, 270° at 2688 x 1520 or lower)
Mirror	Off, On
Privacy Masking	Off, On (4 Areas, Rectangular)
Advanced Features	Smart IR, Smart-scene Adaptive (SSA), AFSA, AI SSA, Defog, Electronic Image Stabilization (EIS)

Audio

Built-in Microphone	Yes
Compression	G.711a, G.711Mu, G.726, PCM, G.723, AAC

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, G and T), CGI, P2P
Auto Register	Support
Streaming Method	Unicast/Multicast
Maximum User Access	20 Users (Max. Bandwidth: 64 Mbps)
Edge Storage	Network Attached Storage (NAS), FTP, SFTP, SD Card Slot (Max. 256 GB)
Web Viewer	Microsoft Edge, Chrome
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	UL62368-1 CAN/CSA C22.2 No. 62368-1-14
Electromagnetic Compatibility (EMC)	47 CFR FCC Part 15, Subpart B

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 or PoE (IEEE 802.3af)
Power Consumption	Basic: 4 W (12 VDC); 4.9 W (PoE) Max. (WDR + IR intensity + Intelligence): 9.2 W (12 VDC); 10.5 W (PoE)

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

Environmental

Casing	Metal
Dimensions	122.0 mm x 94.0 mm (4.80 in. x 3.70 in.)
Net Weight	0.713 kg (1.57 lb)
Gross Weight	0.986 kg (2.17 lb)

Analytics+ Functions

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 10 detection methods. • Search and retrieve video based on target type.
Smart Motion Detection+[2]	• 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.

Intelligent Video System Functions

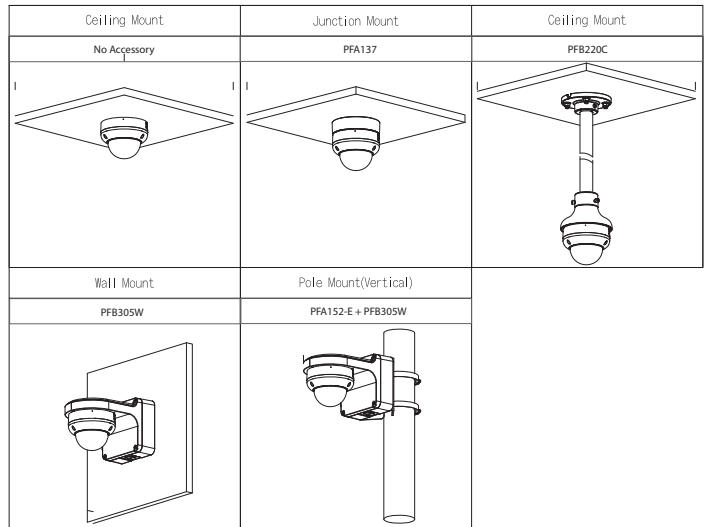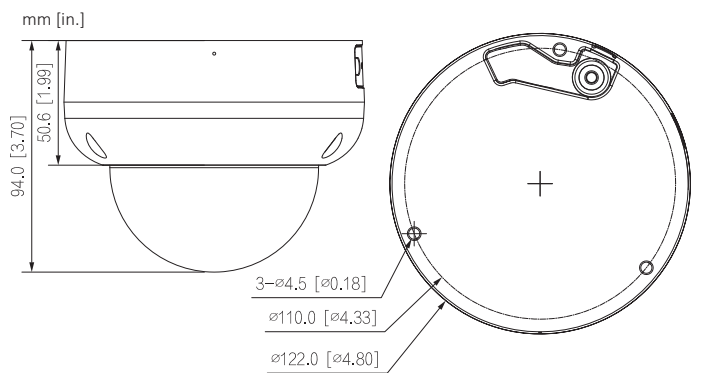| IVS triggers an alarm and takes a defined action for the following events:	
Standard Features	• Tampering with the camera. • Error writing to an onboard Micro SD card. • Error sending or receiving data over the network. • Unauthorized access to the camera. • IP Address Conflict
Premium Features	
Motion	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.

Ordering Information

Type	Part Number	Description
Camera	N53CM6Z	5MP Enhanced Starlight Network Vari-focal Dome Camera with Smart Motion Detection+
Accessories (Optional)	DH-PFA109	Mount Adapter
	PFA137	Junction Box
	PFA151	Corner Mount
	PFA152-E	Pole Mount
	PFB203W	Wall Mount
	PFB305W	Wall Mount
	PFB220C	Ceiling Mount
	DH-PFB206W	Wall Mount with Integrated Junction Box
	PFA200W	Sun and Rain Shield
	DH-PFB200C	In-ceiling Mount
	DH-PFM321D-US	12 VDC, 1 A Power Adapter
	PC-H49-D90	Polycarbonate Smoke Tinted Bubble

Accessories

Optional:

DH-PFA109
Mount Adapter

PFA137
Junction Box

PFA151
Corner Mount

PFA152-E
Pole Mount

PFB203W
Wall Mount

PFB220C
Ceiling Mount

DH-PFB206W
Wall Mount with Integrated Junction Box

PFA200W
Sun and Rain Shield

DH-PFB200C
In-ceiling Mountx

PFB305W
Wall Mount

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

PC-H49-D90
Polycarbonate Smoke Tinted Bubble

Ceiling Mount	Junction Mount	Ceiling Mount
No Accessory	PFA137	PFB220C
Wall Mount	Pole Mount(Vertical)	
PFB305W	PFA152-E + PFB305W	

Dimensions

mm [in.]

94.0 [3.70]
50.6 [1.99]
3−⌀4.5 [⌀0.18]
⌀110.0 [⌀4.33]
⌀122.0 [⌀4.80]

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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. 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.