dhua TECHNOLOGY

4K Starlight Network Security System
Six (6) 4K Dome Network Cameras with One (1) 8-channel 4K NVR

4K Network Cameras
- 8 MP (3840 x 2160) at 15 fps Maximum Resolution
- 2.8 mm Fixed Lens
- Maximum IR Length 30 m (98 ft) with Smart IR
- Starlight Technology for Ultra Low-light Applications
- Intelligent Video System
- IP67 Environmental Protection and IK10 Vandal Resistance

4K Network Video Recorder
- 3 TB Pre-installed Hard Disk Drive
- Smart H.265+ and Smart H.264+ Dual Codec
- Up to 8 MP Resolution for Preview and Playback
- 4 Channels of 8 MP or 8 Channels of 1080p Decoding
- 320 Mbps Incoming Bandwidth

System Overview

The Dahua Network Security System provides all the components to quickly install, configure, and employ a complete video surveillance solution. The IP cameras offer the clarity of 4K video, and the NVR offers built-in motion detection algorithms, alarm triggers, and customized recording modes. The NVR also features Plug and Play technology to connect quickly to cameras on the same network. Each component accepts a PoE power supply to facilitate installation.

Functions

Starlight Technology
For challenging low-light applications, Dahua's Starlight 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.

Intelligent Video System
IVS is a built-in video analytic algorithm that delivers intelligent functions to monitor a scene for Tripwire violations, where a target crosses a user-defined line and the camera quickly and accurately responds by triggering an alarm. Working with IVS-enabled IP cameras, the NVR recognizes and records video that contains IVS data on all IP channels.

Smart IR
With IR illumination, detailed images can be captured in low light or total darkness. The camera's Smart IR technology adjusts the intensity of camera's infrared LEDs to compensate the distance of an object. Smart IR technology prevents IR LEDs from whitening out images as they come closer to the camera. The camera's integrated infrared illumination provides high performance in extreme low-light environments up to 30 m (98 ft).

Flexible Recording
The NVR offers a variety of configurable recording options and schedules that saves disk space and active monitoring time. The NVR monitors incoming video and can be programmed to record if motion is detected or if an alarm is triggered. The NVR can also be programmed to record on a schedule or at different intervals. The recording options and schedules can be set for each individual camera or copied to all cameras.

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
With a temperature range of –40° C to +60° C (–40° F to +140° F), the cameras are designed for extreme temperature environments. The camera complies with the 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 and certified to rigorous dust and water immersion tests, the IP67 rating makes it suitable for demanding outdoor applications.

The NVR features an operating temperature of –10° C to +55° C (+14° F to +131° F).

Interoperability
The camera and NVR conform to the ONVIF (Open Network Video Interface Forum) specification, ensuring interoperability between network video products regardless of manufacturer.

Technical Specification

N82AL32 4K Network Camera

Camera

Image Sensor	1/2.7-in. 8 MP Progressive-scan CMOS
Effective Pixels	3840(H) x 2160(V)
RAM/ROM	128 MB / 256 MB
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual, 1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.009 lux at F2.0 0 lux at F2.0 (IR on)
IR Distance	Distance up to 30.0 m (98.43 ft)
IR On/Off Control	Auto, Manual
IR LEDs	Three (3)

Lens

Lens Type	Fixed-focal
Mount Type	M12
Focal Length	2.8 mm
Maximum Aperture	F2.0
Angle of View	Horizontal: 106° Vertical: 56° Diagonal: 125°
Iris Type	Fixed
Close Focus Distance	1.0 m (3.30 ft)

DORI[1] Distance	Lens	Detect	Observe	Recognize	Identify
	2.8 mm	74.70 m (245.10 ft)	29.90 m (98.10 ft)	14.90 m (48.90 ft)	7.50 m (24.60 ft)

Pan/Tilt/Rotation

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, MJPEG (sub stream only)
Streaming Capability	Two (2) Streams
Resolution	8 MP (3840 x 2160), 6 MP (3072 x 2048), 3072 x 1728, 2592 x 1944, 2688 x 1520, 3 MP (2048 x 1536), 2304 x 1296, 1080p (1920 x 1080), 1.3 MP (1280 × 960), 720p (1280 x 720), D1 (704 x 480), VGA (640 × 480), CIF (352 x 240)
Frame Rate	Main Stream: 3840 x 2160 at 15 fps or 2688 x 1520 at 30 fps
	Sub Stream 1: D1 (704 x 480) at 30 fps
Bit Rate Control	CBR/VBR
Bit Rate	H.264: 32 Kbps to 8192 Kbps H.265: 12 Kbps to 8192 Kbps

Day/Night	Auto (ICR), Color, B/W
BLC Mode	BLC, HLC, True WDR (120 dB)
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)
Smart IR	Support
Digital Zoom	16x
Flip	0°, 90°, 180°, 270°
Mirror	Off, On
Privacy Masking	Off, On (4 Areas, Rectangular)

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, Bonjour, 802.1x, Multicast, ICMP, IGMP, SNMP
Interoperability	ONVIF (Profile S, G, T), CGI, P2P, Milestone, Genetec
Auto Register	Support
Streaming Method	Unicast / Multicast
Max. User Access	10 Users /20 Users
Edge Storage	Network Attached Storage (NAS) FTP, SFTP, Micro SD Slot, maximum 128 GB
Web Viewer	IE, Chrome, Firefox, Safari
Management Software	SmartPSS, DSS, DMSS
Smart Phone	IOS, Android

Certifications

Safety	EN 60950-1 UL60950-1 CAN/CSA C22.2 No.60950-1-07
Electromagnetic Compatibility (EMC)	FCC CFR 47 Part 15 Subpart B Electromagnetic Compatibility Directive 2014/30/EU

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.

Technical Specification - 4K Network Camera, continued

Electrical

Power Supply	12 VDC or PoE (IEEE 802.3af, Class 0)
Power Consumption	< 6.2 W

Environmental

Operating Temperature	−40° C to +60° C (−40° F to +140° F) Less than 95% RH
Storage Temperature	−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 (ø4.33 in. x 3.19 in.)
Net Weight	0.35 kg (0.77 lb)
Gross Weight	0.49 kg (1.08 lb)

Intelligence

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.
Premium Features	
Tripwire	A target crosses a user-defined line.

Technical Specification

N52B2P3 4K ePoE Network Video Recorder

System

Main Processor	Quad-core Embedded Processor
Operating System	Embedded LINUX

Audio and Video

IP Camera Input	Eight (8) Channels
Audio	Input: One (1) Channel, RCA Output: One (1) Channel, RCA

Display

Interface	One (1) HDMI Port One (1) VGA Port
Native Output Resolution	HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720, 1024 × 768
	VGA: 1920 × 1080, 1280 × 1024, 1280 × 720, 1024 × 768
Maximum Decoding	Four (4) Channels of 8 MP at 30 fps Eight (8) Channels of 1080p at 30 fps
Multi-screen Display	1/4/8/9
On-screen Display	Camera Title, Time, Camera Lock, Motion Detection, Recording

Recording

Compression	Smart H.265+, H.265, Smart H.264+, H.264, MJPEG
Supported IP Camera Resolution	12 MP, 8 MP, 6 MP, 5 MP, 4 MP, 3 MP, 1080p, 1.3 MP, 720p, D1, CIF
Maximum Incoming Bandwidth	320 Mbps
Bit Rate	16 Kbps to 20 Mbps per Channel
Record Mode	Manual, Schedule (Regular, Motion Detection), Alarm, IVS, Stop
Record Interval	1 to 120 minutes (default: 60 minutes) Pre-record: 1 to 30 s Post-record: 10 to 300 s

Video Detection and Alarm

Trigger Events	Recording, PTZ, Tour, Alarm Out, Video Push, Email, Snapshot, Buzzer and Screen Tips
Video Detection	Motion Detection, MD Zones: 396 (22 × 18), Video Loss and Tampering
Alarm Input	Four (4) Channels
Relay Output	Two (2) Channels

Playback and Backup

Sync Playback	1/4/9
Search Mode	Time /Date, Alarm, MD and Exact Search (accurate to 1 second)
Playback Function	Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Backup Selection, Digital Zoom
Backup Mode	USB Device and Network

Third-party Support

Third-party Support	Dahua, Arecont Vision, AXIS, Bosch, Brickcom, Canon, CP Plus, Dynacolor, Honeywell, Panasonic, Pelco, Samsung, Sanyo, Sony, Videotec, Vivotek, and others

Network

Interface	One (1) RJ-45 Port (10/100/1000 Mbps)
PoE	Eight (8) Ports (IEEE802.3af/at)
ePoE and EoC	Ports 1 through 8
Network Function	HTTP, HTTPS, TCP/IP, IPv4/IPv6, UPnP, SNMP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, PPPoE,DDNS, FTP, Alarm Server, IP Search (Support Dahua IP camera, DVR, NVS, etc.),
Maximum User Access	128 Users
Mobile Operating System	IOS, Android
Interoperability	ONVIF 2.4, SDK, CGI

Storage

Internal HDD	2 SATA III Ports, up to 10 TB capacity for each HDD

Auxiliary Interface

USB	One (1) USB 3.0 Port (rear panel) One (1) USB 2.0 Port (front panel)
RS232	One (1) Port, for PC Communication and Keyboard
RS485	One (1) Port, for PTZ control

Electrical

Power Supply	100 VAC to 240 VAC, 50/60 Hz
Power Consumption	NVR: < 15.2 W, without HDD
PoE Budget	130 W Total Rated Power, 80% control for protection Maximum 25.5 W for a single port
Fan	Smart Fan Function, NVR automatically adjusts fan speed based on ambient temperature

Environmental

Operating Temperature	−10° C to +55° C (+14° F to +131° F), 86 to 106 kpa
Storage Temperature	−20° C to +70° C (−4° F to +158° F), 0 to 90% RH

Construction

Dimensions	
NVR	375.0 mm x 326.48 mm x 53.0 mm (14.76 in. x 12.85 in. x 2.08 in.)
NVR with PFH101 Rack Mount Tray	482.60 mm x 326.48 mm x 53.0 mm (19.0 in. x 12.85 in. x 2.08 in.)
Net Weight	2.70 kg (6.0 lb), without HDD
Gross Weight	4.0 kg (8.80 lb), without HDD

Certifications

CE	EN55032, EN55024, EN50130-4, EN60950-1
Safety	UL 60950-1
Electromagnetic Compatibility (EMC)	FCC CFR 47 Part 15 Subpart B ANSI C63.4-2014

Technical Specification - 4K Network Video Recorder, cont

Intelligence

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

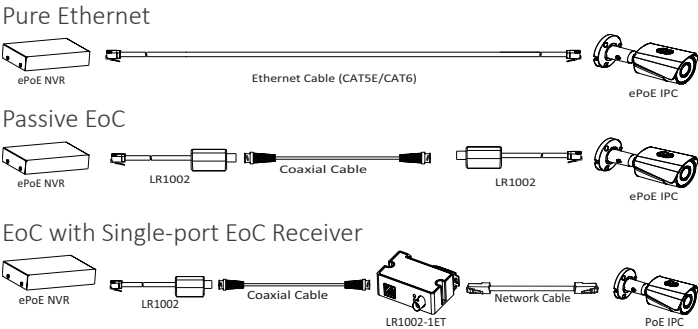| Standard Features	• Tampering with the camera. • Camera loses or changes focus drastically. • Error writing to an onboard Micro SD card. • Error sending or receiving data over the network. • Unauthorized access to the camera.
Premium Features	
Motion	An object moves through any part of the scene.
Tripwire	A target crosses a user-defined line.
Intrusion	A target enters or exits a defined perimeter.
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.
Advanced Features (records data from IP cameras with Advanced Features)	
Facial Detection	Detects and captures a snapshot of a human face in a defined area within a scene.
Face Recognition	Triggers an event if the connected facial recognition camera matches a face to one stored on the camera's database.
People Counting	Measure the number of customers, visitors or passengers in a surveillance scene.
Heat Map	Generates a visual representation of data.

ePoE/EOC 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

ePoE and EoC Applications

Pure Ethernet

ePoE NVR — Ethernet Cable (CAT5E/CAT6) — ePoE IPC

Passive EoC

ePoE NVR — LR1002 — Coaxial Cable — LR1002 — ePoE IPC

EoC with Single-port EoC Receiver

ePoE NVR — LR1002 — Coaxial Cable — LR1002-1ET — Network Cable — PoE IPC

Ordering Information

Type	Part Number	Description
4K Network Security System	N588D63S	
	• N82AL32	4K IR Dome Network Camera (x6)
	• N52B2P3	8-channel 4K NVR, 3 TB (x1)
4K Camera Accessories, optional	PFA106	Mount Adapter
	PFA136	Junction Box
	PFA152-E	Pole Mount
	PFA200W	Sun/Rain Shield
	PFB203W	Wall Mount
	PFB220C	Ceiling Mount
	DH-PFM321D-US	12 VDC, 1 A Power Adapter

Package Contents (individual devices ship with the following:)

Product	Material
Network Cameras	Printed Manual Printed Regulatory Guide Plastic Wall Anchors with Screws (x3) Mounting Template Waterproof Ethernet Connector
Storage Device	Quick Network Guide Printed Manual Printed Regulatory Guide Mouse Power Adapter with Power Cord Ethernet Cable, RJ45 Rubber Feet (x4)

Camera Accessories

Optional:

PFA106
Mount Adapter

PFA136
Junction Box

PFA152-E
Pole Mount

PFA200W
Sun/Rain Shield

PFB203W
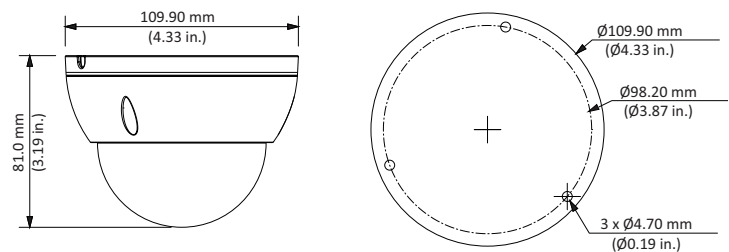Wall Mount

PFB220C
Ceiling Mount
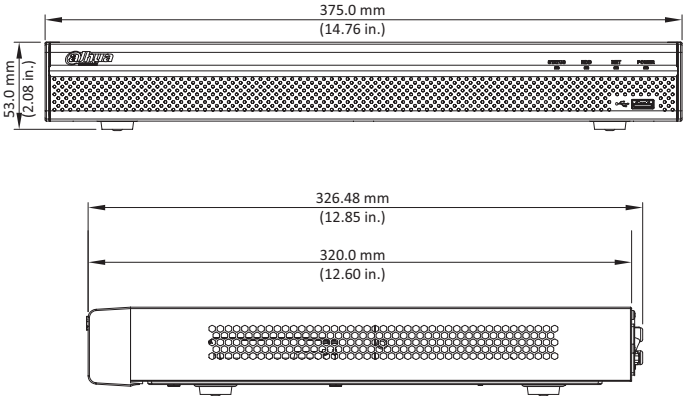
DH-PFM321D-US
Power Adapter

Installation - 4K Network Camera

Junction Mount	Wall Mount	Wall Mount	Pole Mount
PFA136	PFA136+PFA200W	PFB203W	PFB203W+PFA152-E

Ceiling Mount
PFA106+PFB220C

Dimensions (mm/in.) - 4K Network Camera

109.90 mm
(4.33 in.)

81.0 mm
(3.19 in.)

Ø109.90 mm
(Ø4.33 in.)

Ø98.20 mm
(Ø3.87 in.)

3 x Ø4.70 mm
(Ø0.19 in.)

Dimensions (mm/in.) - 4K NVR

375.0 mm
(14.76 in.)

53.0 mm
(2.08 in.)

326.48 mm
(12.85 in.)

320.0 mm
(12.60 in.)

Rear Panel - 4K NVR
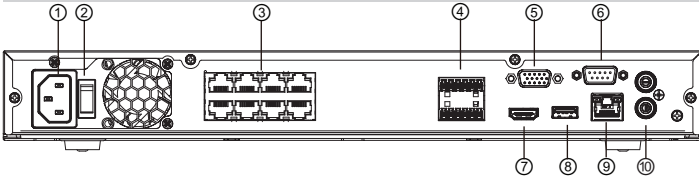
1	Power Input	6	VGA Output
2	Power Switch	7	HDMI Output
3	PoE/PoE+ Ports,RJ-45 (x8) ePoE/EoC Ports: 1 through 8	8	USB 3.0 Port
4	Alarm Input (x4) Alarm Output (x2) RS485 Port	9	RJ-45 Ethernet Port (1000 Mbps)
5	RS232 Port	10	Audio Input, RCA (x1) Audio Output, RCA (x1)