alhua TECHNOLOGY

4K Network Security System

Four (4) 4 MP Eyeball and Two (2) 4K Dome Network Cameras with One (1) 8-channel 4K NVR

4 MP Network Cameras
- 4 MP at 20 fps Maximum Resolution, 2.8 mm Fixed Lens
- Maximum IR Length 30 m (98 ft) with Smart IR
- Intelligent Video System
- IP67 Environmental Protection

4K Network Cameras
- 8 MP at 15 fps Maximum Resolution, 2.8 mm Fixed Lens
- Maximum IR Length 30 m (98 ft) with Smart IR
- Intelligent Video System
- IP67 Environmental Protection

4K Network Video Recorder
- Smart H.265+ and Smart H.264+ Dual Codec
- Up to 8 MP Resolution for Preview and Playback
- Up to 2 Channels of 8 MP or 8 Channels of 1080p Decoding
- 80 Mbps Incoming Bandwidth

Flexible Recording
The NVR offers a variety of configurable recording options and schedules that saves HDD 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 built-in heater and a temperature range of −30° C to +60° C (−22° F to +140° F), the cameras are designed for extreme temperature environments. The cameras, subjected to rigorous dust and water immersion tests, are certified to the IP67 rating making them 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.

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

Intelligent Video System
IVS is a built-in video analytic algorithm that delivers intelligent functions to monitor a scene for Tripwire violations, intrusion detection, and abandoned or missing objects. A camera with IVS quickly and accurately responds to monitoring events in a specific area. In addition to scene analytics, the camera detects and captures a snapshot of human face in a defined area within a scene, and offers tamper detection by recognizing a dramatic scene change and generating a warning message to inspect the camera.

Working with IVS-enabled IP cameras, the NVR recognizes and records video that contains IVS data on all IP channels. The NVR records standard intelligence at-the-edge features, as well as premium IVS features that detect abandoned or missing objects, Tripwire violations, and intrusion violations.

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).

Technical Specification

N41BK22 4 MP Network Camera

Camera

Image Sensor	1/3-in. CMOS
Effective Pixels	2688 (H) x 1520 (V), 4 MP
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual: 1/30 s to 1/100000 s
Minimum Illumination	Color: 0.08 lux at F2.0 (1/3 s, 30 IRE) Color: 0.3 lux at F2.0 (1/30 s, 30 IRE) 0 Lux with IR on
S/N Ratio	More than 65 dB
IR Distance	Up to 30 m (98.04 ft)
IR On/Off Control	Auto, Manual
IR LEDs	12

Lens

Lens Type	Fixed Lens
Mount Type	Board-in
Focal Length	2.8 mm
Max Aperture	F2.0
Angle of View	Horizontal: 104° Vertical: 57°
Focus Control	Fixed

DORI[1] Distance

Detect (8 ppf)	Observe (19 ppf)	Recognize (38 ppf)	Identify (76 ppf)
63 m (207 ft)	25 m (82 ft)	13 m (43 ft)	6 m (20 ft)

Installation Angle

Range	Pan: 0° to 360° Tilt: 0° to 90° Rotation: 0° to 360°

Video

Compression	Smart H.265+, H.265, Smart H.264+, H.264, MJPEG (sub stream only)
Streaming Capability	Two (2) Streams
Resolution	4 MP (2688 x 1520), 3 MP (2304 x 1296), 1080p (1920 x 1080), 720p (1280 x 720), VGA (640 x 480), D1 (704 x 480), CIF (352 x 240)
Frame Rate	Main Stream	4 MP at 20 fps or 3 MP at 30 fps
	Sub Stream	D1 at 30 fps
Bit Rate Control		CBR, VBR
Day/Night		Auto (ICR), Color, B/W
BLC Mode		BLC, HLC, True WDR (120 dB)
Gain Control		Auto, Manual
Noise Reduction		3D DNR

Motion Detection	Off, On (4 Zones, rectangular)
Region of Interest	Off, On (4 Zones)
Smart IR	Auto, Manual
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, API
Streaming Method	Unicast, Multicast
Max. User Access	10 Users /20 Users
Edge Storage	NAS Local PC for instant recording
Web Viewer	IE, Chrome, Firefox, Safari
Management Software	Smart PSS, DSS
Mobile Operating System	IOS, Android

Certifications

Safety	UL60950-1
Electromagnetic Compatibility (EMC)	FCC CFR 47 FCC Part 15 Subpart B

Electrical

Power Supply	12 VDC, 0.5 A or PoE (IEEE 802.3af, Class 0)
Power Consumption	< 5.5 W

Environmental

Operating Conditions	−30° C to +60° C (−22° F to +140° F), Less than 95% RH
Storage Conditions	−30° C to +60° C (−22° F to +140° F), Less than 95% RH
Ingress Protection	IP67

Construction

Casing	Aluminium
Dimensions	ø93.40 mm × 79.40 mm (ø3.68 in. x 3.13 in.)
Net Weight	0.30 kg (0.66 lb)
Gross Weight	0.42 kg (0.93 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

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.

Technical Specification

N84CL52 4K Network Camera

Camera

Image Sensor	1/2.5-in. 8 MP Progressive-scan STARVIS™ CMOS
Effective Pixels	3840(H) x 2160(V)
RAM/ROM	512 MB/32 MB
Scanning System	Progressive
Electronic Shutter Speed	Auto, Manual, 1/3 s to 1/100,000 s
Minimum Illumination	Color: 0.06 lux at F1.6 (1/3 s, 30 IRE) Color: 0.3 lux at F1.6 (1/30 s, 30 IRE) 0 lux at F1.6 (IR on)
S/N Ratio	More than 50 dB
IR Distance	Distance up to 30 m (98.43 ft)
IR On/Off Control	Auto, Manual
IR LEDs	18

Lens

Lens Type	Fixed
Mount Type	Board-in
Focal Length	2.8 mm
Maximum Aperture	F1.6
Angle of View	Horizontal: 112° Vertical: 69°
Focus Control	Fixed
Close Focus Distance	0.90 m (2.95 ft)

DORI[1] Distance	Lens	Detect	Observe	Recognize	Identify
	2.8 mm	69 m (226 ft)	28 m (92 ft)	14 m (46 ft)	7 m (23 ft)

Pan/Tilt/Rotation

Range	Pan: 0˚ to 355˚ Tilt: 0˚ to 64˚ Rotation: 0˚ to 355˚

Video

Compression	Smart H.265+, H.265, Smart H.264+, H.264
Streaming Capability	Three (3) Streams
Resolution	8 MP (3840 x 2160), 6 MP (3072 x 2048), 5 MP (2560 x 1920) 3 MP (2048 x 1536), 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)
Frame Rate	Main Stream: 8 MP at 15 fps or 3 MP at 30 fps
	Sub Stream 1: D1 at 30 fps
	Sub Stream 2: 1080p at 30 fps
Bit Rate Control	CBR/VBR
Bit Rate	H.264: 24K to 10240 Kbps H.265: 14K to 9984 Kbps

Day/Night	Auto (ICR), Color, B/W
BLC Mode	BLC, HLC, True WDR (120 dB)
White Balance	Auto, Natural, Street Lamp, Outdoor, Manual
Gain Control	Auto, 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)

Audio

Compression	G.711a, G.711Mu, AAC, G.726

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, PSIA, CGI
Streaming Method	Unicast / Multicast
Max. User Access	10 Users /20 Users
Edge Storage	Network Attached Storage (NAS) Local PC for Instant Recording Micro SD Slot, maximum 128 GB
Web Viewer	IE, Chrome, Firefox, Safari
Management Software	SmartPSS, DSS
Smart Phone	IOS, Android

Certifications

Safety	UL60950-1
Electromagnetic Compatibility (EMC)	FCC CFR 47 FCC Part 15 Subpart B

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

Audio	Input: One (1) Channel, RCA Output: One (1) Channel, RCA
Alarm	Input: One (1) Channel (5 mA, 5 VDC) Output: One (1) Channel (300 mA, 12 VDC)

Electrical

Power Supply	12 VDC, 0.5 A or PoE (IEEE 802.3af, Class 0)
Power Consumption	< 5.5 W

Environmental

Operating Temperature	−30° C to +60° C (−22° F to +140° F) Less than 95% RH
Storage Temperature	−30° C to +60° C (−22° F to +140° F) Less than 95% RH
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	0.41 kg (0.91 lb)
Gross Weight	0.53 kg (1.17 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

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.

Technical Specification

N41B2P3 4K NVR

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
Two-way Talk		Reuse Audio In/Out, RCA

Recording

Compression	Smart H.265+, H.265, Smart H.264+, H.264
Supported IP Camera Resolution	8 MP, 6 MP, 5 MP, 4 MP, 3 MP, 1080p, 1.3 MP, 720p, 960H, D1, CIF
Maximum Recording Rate	80 Mbps
Bit Rate	16 Kbps to 20 Mbps per Channel
Record Mode	Manual, Schedule (Regular, Continuos), Motion Detection, Tampering, Video Loss, Stop
Record Interval	1 to 120 minutes (default: 60 minutes),
Pre-record: 1 s to 30 s,
Post-record: 10 s to 300 s

Display

Interface		One (1) HDMI
One (1) VGA
Native Output Resolution	HDMI	3840 x 2160, 2560 x 1440, 1920 x 1080, 1280 x 1024, 1280 x 720
	VGA	1920 x 1080, 1280 x 1024, 1280 x 720
Maximum Decoding		• Two (2) Channels of 8 MP at 30 fps
• Four (4) Channels of 4 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, Video Loss, Camera Lock, Motion Detection, Recording

Network

Interface	One (1) RJ45 (10/100 Mbps) Port
PoE	Four (4) Ports (IEEE 802.3af/at)
Network Function	HTTP, HTTPS, TCP/IP, IPv4/IPv6, UPnP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, PPPoE, DDNS, FTP, SNMP, IP Search (Support Dahua IP camera, DVR, NVS)
Maximum User Access	128 Users
Mobile Operating System	IOS, Android
Interoperability	ONVIF 2.4, SDK, CGI

Video Detection and Alarm

Trigger Events	Recording, PTZ, Tour, Video Push, Email, Snapshot, Buzzer and Screen Tips
Video Detection	Motion Detection, MD Zones: 396 (22 × 18), Video Loss, and Tampering

Playback and Backup

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

Storage

Internal HDD	One (1) SATA III Port, up to 6 TB
Unit ships with a pre-installed 3 TB HDD
HDD Mode	Single

Auxiliary Interface

USB	Two (2) USB 2.0 Ports (1 front panel, 1 rear panel)

Electrical

Power Supply	48 VDC, 1.5 A
Power Consumption, NVR	< 8.3 W, without HDD
Total PoE Power	25.5 W single port, 80 W total

Construction

Dimensions	270.0 mm x 204.70 mm x 45.70 mm
(10.60 in. x 8.10 in. x 1.80 in.)
Net Weight	0.65 kg (1.43 lb), without HDD
Gross Weight	1.80 kg (3.97 lb), without HDD

Environmental

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

Certifications

Safety	UL 60950-1, EN 60950-1
Electromagnetic Compatibility (EMC)	FCC Part 15 Subpart B, ANSI C63.4-2014 EN 55032, EN 50130-4
Immunity	EN 55024

Ordering Information

Type	Part Number	Description
4K Network Security System	N448D42	• 4 x 4 MP IR Eyeball Network Cameras • 2 x 4K IR Dome Network Cameras • 1 x 8-channel 4K NVR, 3 TB
4 MP Camera Accessories, optional	PFA13A-E	Junction Box (For use alone)
	PFA152-E	Pole Mount (For use with PFB204W wall mount)
	PFB204W	Wall Mount (For use alone or with PFA152 pole mount)
	DH-PFM321D-US	12 VDC, 1 A Power Adapter
4K Camera Accessories, optional	PFA136	Junction Box
	PFA152-E	Pole Mount
	PFA200W	Sun/Rain Shield
	PFB203W	Wall Mount
	DH-PFM321D-US	12 VDC, 1 A Power Adapter

Camera Accessories

Optional:

PFA13A-E
Junction Box

PFA136
Junction Box

PFA152-E
Pole Mount

PFA200W
Sun/Rain Shield

PFB203W
Wall Mount

PFB204W
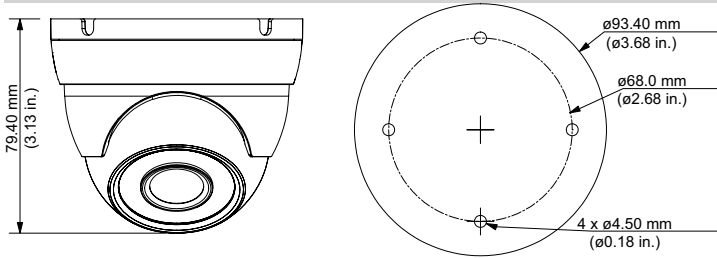Wall Mount

DH-PFM321D-US
Power Adapter

Installation - 4 MP Network Camera

Junction Mount	Pole Mount
PFA13A-E	PFB204W + PFA152-E

Wall Mount

PFB204W

Installation - 4K Network Camera

Junction Mount	Pole Mount
PFA136	PFB203W + PFA152-E

Wall Mount

PFB203W

Pole Mount with Rain Shade

PFA136 + PFA152-E + PFA200W

Junction Box with Rain Shade

PFA136 + PFA200W

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

79.40 mm
(3.13 in.)

ø93.40 mm
(ø3.68 in.)

ø68.0 mm
(ø2.68 in.)

4 x ø4.50 mm
(ø0.18 in.)

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

270.0 mm
(10.60 in.)

45.70 mm
(1.80 in.)

204.70 mm
(8.10 in.)
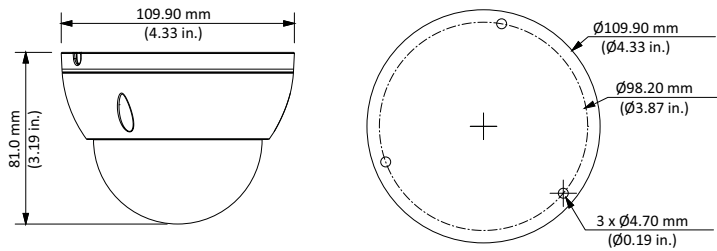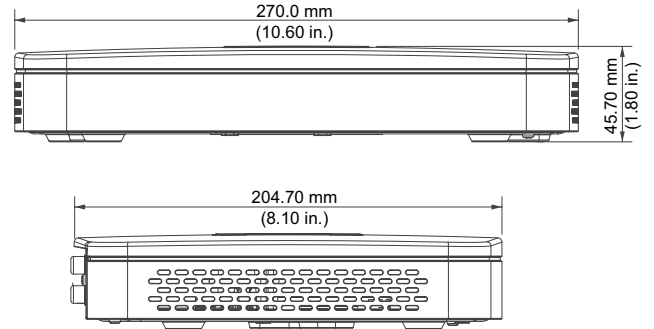
Rear Panel - 4K NVR
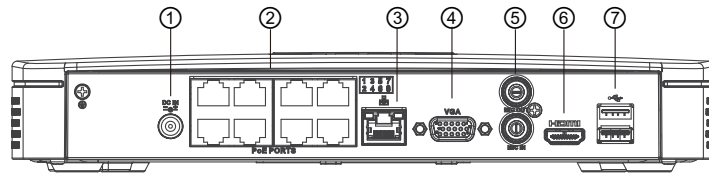
1	VDC Power In	5	Audio Input/Output
2	PoE Ports x 8	6	HDMI Output
3	Network Port	7	USB Ports x 2
4	VGA Output		

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