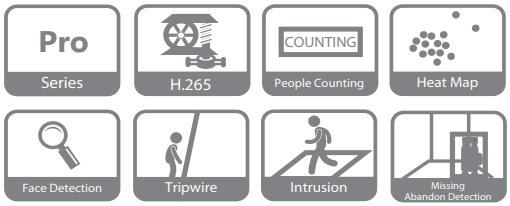
16-channel 4K ePoE Network Video Recorder

1U 16 PoE Ports H.265 NVR

- Smart H.265+ and H.264 Dual Codecs
- Maximum 320 Mbps Incoming Bandwidth
- Up to 12 MP Resolution for Preview and Playback
- Ports 1 to 8 Support ePoE and EoC Signal Transmission, up to 800 m (2625 ft)
- HDMI and VGA Simultaneous Video Output
- Five-year Warranty*



SMD Smart Motion Detection

System Overview

Dahua's Pro Series network video recorders offer excellent performance and high recording quality for IP video security applications. For applications where details are critical for identification, this professional NVR provides a powerful processor with up to 4K resolution. Additionally, the NVR features a mouse shortcut operation menu, remote management and control, central storage, edge storage, and back up storage options.

Functions

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. ePoE technology saves time and money by reducing overall cabling requirements, allowing for existing coax cable to be used, and minimizing the number of peripheral devices needed. For new installations, ePoE offers the ability to design long-distance applications without the need for additional repeaters.

Enhanced PoE encompasses pure IP systems where a single CAT5E cable can carry signals up to 800 m (2624 ft), and IP/Analog hybrid systems where the technology leverages existing analog infrastructure to transmit power and data up to 1000 m (3281 ft) over RG59 coaxial cable. Enhanced PoE is compatible with three connection modes operating over the same network simultaneously: traditional IP networks, long-distance ePoE networks and coaxial networks. ePoE technology seamlessly integrates the latest high-definition IP cameras with a coaxial infrastructure using the Ethernet over Coaxial (EoC) protocol to convert between analog and IP power and data transmissions.

Dewarping Mode

The NVR has the ability to correct the distortion in a circular panoramic view produces by a fisheye lens. The NVR offers various dewarping modes for different installations and configurations.

Intelligent Video System (IVS) Recording

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, and abandoned or missing objects, Tripwire violations, and intrusion violations. The NVR also records business analysis data – Facial Detection, People Counting, and Heat Map – from IP cameras with built-in Intelligent Business Analytics.

Face Detection+ Recording

The NVR stores Face Detection+ video and data from a dedicated camera with Face Detection+ connected to the NVR. The NVR triggers an event if the camera detects a face with a specific set of features.

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.

Automatic Network Replenishment Technology (ANR)

Network Video Recorders with the ANR function automatically store video data on an IP camera SD card when the network is disconnected. After recovery of the network, the NVR automatically retrieves the video data stored on the camera.

Smart Fan

The NVR automatically adjusts the fan speed based on the ambient temperature. Smart Fan technology increases the life of the unit, reduces maintenance costs, and reduces noise.

Automatic License Plate Capture

The NVR automatically captures and stores vehicle license plate images from a dedicated license plate capture camera connected to the NVR. During playback, an operator can perform a license plate search by Time and Date to view thumbnail images of all plates captured during the specified time period. License plate capture technology offers effective entrance/exit management and parking lot monitoring.

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

Technical Specification

System

Main Processor	Quad-core Embedded Processor
Operating System	Embedded LINUX

Audio and Video

IP Camera Input	16 Channels
Audio	Input: One (1) Channel, RCA Output: One (1) Channel, RCA

Display

Interface	One (1) HDMI Port One (1) VGA Port
Spot Output	HDMI or VGA, configurable
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 16 Channels of 1080p at 30 fps
Multi-screen Display	1/4/8/9/16
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 (The recording rate is dependent on the maximum resolution and frame rate of the connected IP camera.)
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	1/4/9/16
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	16 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 Part 15 Subpart B ANSI C63.4-2014

Camera Support

Smart Motion Detection+	Any channel connected to a Dahua Network camera with Smart Motion Detection+[1].
Face Detection+	Any channel to a Dahua Network camera with Face Detection+ .

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)	
Face Detection	Detects and captures a snapshot of a human face in a defined area within a scene.
People Counting	Measure the number of customers, visitors or passengers in a 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

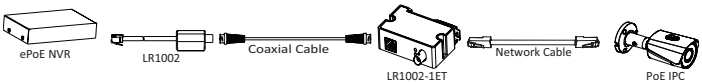
Cable Length, m (ft)	Bandwidth, Mbps	PoE Load Capacity, W	Hi-PoE Load Capacity, W	Working Mode
100 (328)	100	25.5	52	IEEE/E100
200 (656)	100	25.5	48	E100
300 (984)	100	25.5	30	E100
400 (1312)	100	20	23	E100
500 (1640)	10	16	16	E10
800 (2625)	10	10	10	E10
1000 (3281)	10	8	8	E10

ePoE and EoC Applications

Pure Ethernet

Passive EoC

EoC with Single-port EoC Receiver



Ordering Information

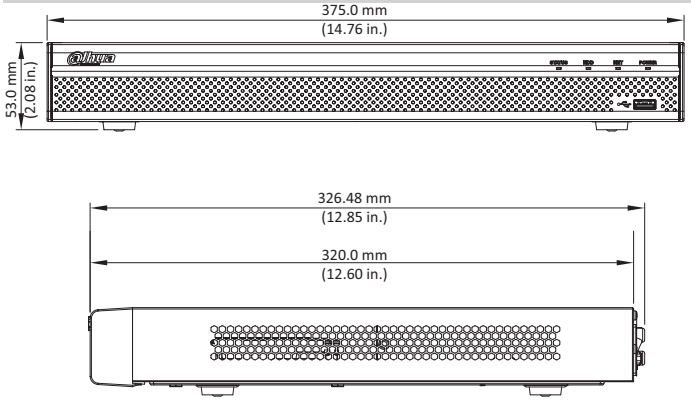
16-channel NVR	N52B3P	No pre-installed HDD
	N52B3P4	16-channel 1U ePoE 4K, H.265, 4 TB HDD Network Video Recorder
	N52B3P8	16-channel 1U ePoE 4K, H.265, 8 TB HDD Network Video Recorder
	N52B3P10	16-channel 1U ePoE 4K, H.265, 10 TB HDD Network Video Recorder
Accessories, optional	PFH101	Rack Mount Tray 482.60 mm x 281.20 mm x 43.7 mm (19.0 in. x 11.07 in. x 1.72 in.)
ePoE Accessories	LR1002	EoC Passive Converter

Accessories

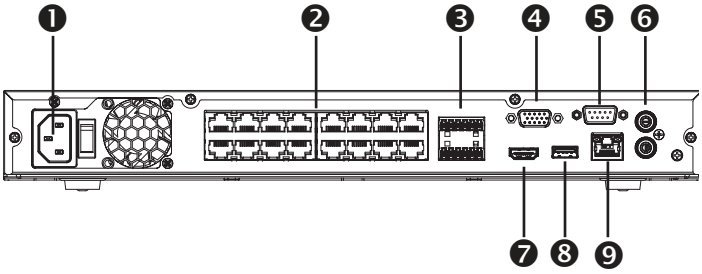
ePoE:

LR1002
EoC Passive Converter

Dimensions (mm/in.)



Rear Panel



1	Power Input	6	Audio Input (x1) Audio Output (x1)
2	PoE/PoE+ Ports (x16) ePoE/EoC Ports: 1 through 8	7	HDMI Output
3	Alarm Input (x4) Alarm Output (x2) RS485 Port	8	USB 3.0 Port
4	VGA Output	9	Ethernet Port (1000 Mbps)
5	RS232 Port		

1. The recorder SMD+ functions are available only when connected to a Dahua network camera with SMD+ functionality. 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.