

16-channel 4K ePoE Network Video Recorder

1U Smart H.265+ Network Video Recorder with Analytics+



- Maximum 200 Mbps Incoming Bandwidth
- 16 IP Channel Video Access
- Smart H.265+ and Smart H.264+ Video Compression
- Perimeter Protection with 10 Rule Definitions per Channel (up to 4 channels)
- Video Stream Face Recognition (up to 2 channels)
- Processes 12 Facial Images per Second
- Facial Database Management, Stores up to 20,000 Faces
- Stranger Mode to Detect Faces not Stored in Database
- 16 PoE Ports, Ports 1 to 8 Support ePoE and EoC Signal Transmission up to 800 m (2625 ft)
- Five-year Warranty*



System Overview

The Dahua DHI-NVR4216-16P-I combines Analytics+ algorithms with Dahua's ePoE technology into an all-in-one network video recorder. This NVR uses a powerful multi-core processor to provide 4K resolution processing for applications where impeccable image details are required. In addition, the NVR can be employed as edge storage, central storage, or backup storage with an intuitive shortcut operation menu for remote management and control.

The Dahua Analytics+ algorithms significantly improve accuracy and reliability, as compared to standard intelligent features, to achieve precision human facial analysis, and support two (2) channels of real-time face recognition based on a database that stores up to 20,000 faces. The NVR also offers advanced perimeter protection that distinguishes between human and vehicular violations on up to four (4) channels simultaneously. The DHI-NVR4216-16P-I is ideal for applications that require entrance/exit management, where knowing who is coming and going is a valuable asset.

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.

Real-time Face Recognition

Analytics+ performs real-time facial recognition on up to two (2) streaming video channels simultaneously. The server captures and analyzes facial features to determine gender, age, expression, glasses, moustache, and mask, and then can record the faces and store the associated structured data. The server also filters incoming video to display faces that match target features.

Stranger Mode

The NVR supports two facial detection modes: Common and Stranger. In Stranger mode, when the NVR detects a face not stored in the device's database, it can trigger an alarm, a buzzer, take a snapshot, or initiate recording. It also incorporates a Similarity Threshold, where the server triggers an alarm for a face that does not match a minimum recognition level. The Stranger Mode and the Similarity Threshold are designed for critical infrastructure sites where access control is of vital importance.

Efficient Search

The NVR searches images by facial features to improve search efficiency. The server support uploading and storing 20,000 facial images for comparison with recorded faces. This search capability allows operators to quickly and easily search multiple channel recordings to determine when and where a person of interest appeared in a recording.

Face Database Management

In addition to the 20,000 facial images, the NVR database also stores names, genders, birthdays, nationality, address, and ID information associated with each facial image. The NVR also offers powerful and configurable database management features that can be applied to each face recognition channel independently.

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 90% when compared to the H.264 video compression standard.

Technical Specification

System

Main Processor	Multi-core Embedded Processor
Operating System	Embedded LINUX

Analytics+ Perimeter Protection^{1,2}

Performance	<ul style="list-style-type: none"> Four (4) channels 10 Tripwire/Intrusion rules per channel
Object Classification	<ul style="list-style-type: none"> Human or Vehicle Secondary Recognition for Tripwire and Intrusion
Search	<ul style="list-style-type: none"> Search by object classification (human or vehicle)

Analytics+ Face Recognition^{1,2}

Performance	<ul style="list-style-type: none"> Process 12 facial images per second Up to two (2) channels of video stream face recognition
Stranger Mode	<ul style="list-style-type: none"> Detects a face not stored in the IVSS database. Similarity Threshold set manually.
Search by Image	<ul style="list-style-type: none"> Up to eight (8) target face image searches simultaneously. Supports Similarity Threshold for each target face image.
Database Management	<ul style="list-style-type: none"> 10 Face Databases 20,000 total face images. Stores name, gender, birthday, nationality, address, ID information for each face picture.
Database Application	Each database can be applied to video channels independently.
Trigger Events	Buzzer, Voice Prompts, Email, Snapshot, Recording, Alarm Out, PTZ Activation

Audio and Video

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

Display

Interface	One (1) HDMI Output One (1) VGA Output	
Native Output Resolution	HDMI	3840 x 2160, 1920 x 1080, 1280 x 1024, 1280 x 720 1024 x 768
	VGA	1920 x 1080, 1280 x 1024, 1280 x 720, 1024 x 768
Maximum Decoding	Two (2) Channels of 8 MP at 30 fps Eight (8) Channels of 1080p at 30 fps	
Multi-screen Display	1, 4, 8, 9, 16	

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	200 Mbps (80 Mbps when Analytics+ functions enabled)
Maximum Recording Bandwidth	200 Mbps (80 Mbps when Analytics+ functions enabled)
Bit Rate	16 Kbps to 20 Mbps per channel
Record Mode	Manual, Schedule (Continuous, Motion Detection, Alarm, IVS)
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	Buzzer, Voice Prompt, Email, Snapshot, Recording, Alarm Out, PTZ Activation, Tour, Alarm Upload
Video Detection	Motion Detection, MD Zones: 396 (22 x 18); Video Loss, Tampering, and Scene Change
Alarm Inputs	Four (4) Channels
Relay Outputs	Two (2) Channels

Playback and Backup

Sync Playback	1, 4, 9, 16
Search Mode	Time and Date, Alarm, Motion Detection, and Exact Search (accurate to one second)
Playback Function	Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Shuffle, Backup Selection, Digital Zoom
Backup Mode	USB Device, Network

Third-party Support

Third-party Support	Arecont Vision, Airlive, AXIS, Canon, Dynacolor, JVC, LG, Panasonic, Pelco, Xunmei, Samsung, Sanyo, Sony, Watchnet, plus more
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Network

Interface	One (1) RJ-45 Port (10/100/1000 Mbps)
PoE	16 PoE 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 Center, IP Search (Support Dahua IP camera, DVR, NVS, etc.), P2P
Maximum User Access	128 Users
Mobile Operating Systems	IOS, Android
Interoperability	ONVIF Profile S, SDK, CGI

Storage

Internal HDD	Two (2) SATA III Ports, up to 8 TB capacity for each HDD
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Auxiliary Interface

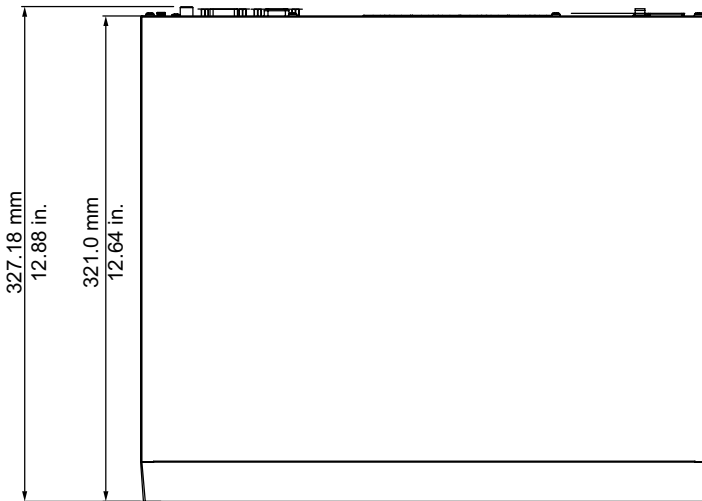
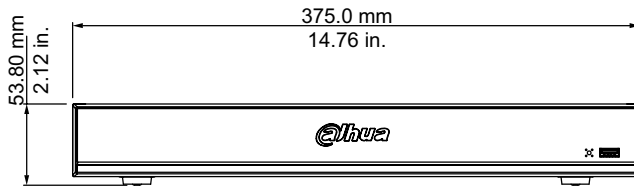
USB	One (1) USB 2.0 Port, rear One (1) USB 2.0 Port, front
RS232	One (1) Port for PC Communication and Keyboard

- The NVR is capable of processing one (1) Analytics+ function per channel, either Face Recognition or Perimeter Protection.
- The capabilities of the listed Analytics+ functions pertain to channels assigned to cameras without built-in Analytics+ functions. If all channels are assigned to cameras with Analytics functionality, the NVR is capable of the following Analytics+ functions: Face Recognition on eight (8) channels or Perimeter Protection on eight (8) channels.

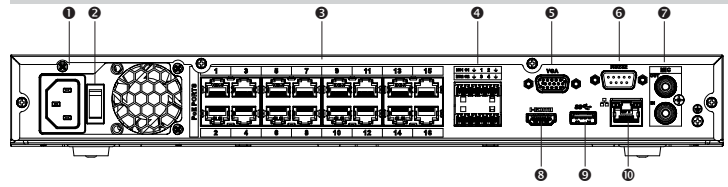
Ordering Information

Type	Part Number	Description
	DHI-NVR4216-16P-I 2TB	16-channel 1U ePoE 4K, H.265 Network Video Recorder with Analytics+, 2 TB
	DHI-NVR4216-16P-I 4TB	16-channel 1U ePoE 4K, H.265 Network Video Recorder with Analytics+, 4 TB
	DHI-NVR4216-16P-I 6TB	16-channel 1U ePoE 4K, H.265 Network Video Recorder with Analytics+, 6 TB
	DHI-NVR4216-16P-I 8TB	16-channel 1U ePoE 4K, H.265 Network Video Recorder with Analytics+, 8 TB
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

Dimensions(mm/in.)



Rear Panel



1	Power Input	6	RS232 Port
2	Power Switch	7	Audio Input (x1 RCA) Audio Output (x1 RCA)
3	PoE/PoE+ Ports (x16 RJ-45) ePoE/EoC Ports: 1 through 8	8	HDMI Output
4	Alarm Input (x2) Alarm Output (x2)	9	USB 3.0 Port
5	VGA Output	10	RJ-45 Ethernet Port (1000 Mbps)