

# DHI-NVR5216-EI

Dahua 16CH 2HDD 1U NETWORK VIDEO RECORDER



WizSense

Launched by Dahua Technology, WizSense is a series of AI products and solutions that adopt independent AI chip and deep learning algorithm. It focuses on human and vehicle with high accuracy, enabling users to fast act on defined targets. Based on Dahua's advanced technologies, WizSense provides intelligent, simple and inclusive products and solutions.

## Series Overview

The NVR5000-EI series offers outstanding performance and high-grade recording technology that make it ideal for IP video surveillance applications. It has a powerful processor, that offers high access and forwarding bandwidth and strong decoding capabilities that together produce unimpeded streams. Thanks to its built-in AI chip and Dahua's advanced deep learning algorithms, the NVR supports a variety of AI functions, such as high-precision face recognition and perimeter protection. They shorten the response time to events and make videos more interactive. This NVR is compatible with numerous third-party devices, making it a great solution for surveillance systems that work with Video Management Software (VMS).

## Functions

### AcuPick

This industry-leading search technology effectively utilizes both front-end and back-end intelligence to help with searching through massive video data to quickly and conveniently locate targets with greater precision.

### Perimeter Protection

Automatically filters out false alarms caused by animals, rustling leaves, bright lights, etc. Enables system to act secondary recognition for the targets. Improves alarm accuracy.

- Supports Smart H.265+, H.265, Smart H.264+, H.264 and MJPEG decoding formats.
- Max. decoding capability: 32 × 1080p@30 fps or 16 × 4MP@30 fps.
- Max. 384/384/384 Mbps incoming/recording/outgoing bandwidth.
- Supports IP cameras with a resolution up to 32 MP.
- Supports AcuPick with up to 16 channels.
- Supports N+M cluster, iSCSI.
- AI by Recorder supports 2-channel face detection and recognition, up to 20 face databases and 20,000 face images; 4-channel perimeter protection; 8-channel SMD Plus.
- AI by Camera supports face detection and recognition, perimeter protection, SMD Plus, metadata, ANPR, stereo analysis, heat map, and people counting.
- Supports EPTZ, and one-click arming and disarming.



### Face Detection

Face detection is to detect if there is any human face appearing in the video. This technology adopts a deep learning algorithm to support face detection, tracking, optimization and capturing, and then output the best face snapshot.

### Face Recognition

Dahua Face Recognition technology extracts the features of captured faces and compares them with that in face database.

### Heat Map by Camera

Dahua heat map technology is used to display the crowd density and people appearance probability. Export and display the crowd status by different colors. Generally, the crowd status is the statistics of people quantity in space and time dimensions.

### ANPR by Camera

With deep learning algorithm, Dahua ANPR technology can recognize the number plate information of vehicles in the image with ANPR cameras. Support blacklist/allowlist mode, searching target vehicles from recorded video.

### SMD Plus

With intelligent algorithm, Dahua Smart Motion Detection technology can categorize the targets that trigger motion detection and filter the motion detection alarm triggered by non-concerned targets to realize effective and accurate alarm.

## Technical Specification

### System

|                     |                            |
|---------------------|----------------------------|
| Main Processor      | Industrial-grade processor |
| Operating System    | Embedded Linux             |
| Operating Interface | Web, Local GUI             |

### AI

|                                 |                                                                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AI by Recorder                  | Face detection; face recognition; perimeter protection; SMD Plus                                                                                                                                                        |
| AI by Camera                    | Face detection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); perimeter protection; SMD Plus; stereo analysis; crowd distribution; people counting; ANPR; vehicle density; heat map |
| AcuPick AI by Camera + Recorder | Max. 16-channel, 1 combined event per channel/s                                                                                                                                                                         |

### Perimeter Protection

|                                                            |                                           |
|------------------------------------------------------------|-------------------------------------------|
| Perimeter Performance AI by Recorder (Number of Channels)  | 4 channels, 10 IVS rules for each channel |
| Perimeter Performance of AI by Camera (Number of Channels) | All channels (16 targets/s)               |

### Face Detection

|                                                                   |                                                           |
|-------------------------------------------------------------------|-----------------------------------------------------------|
| Face Attributes                                                   | Gender; age group; glasses; expressions; face mask; beard |
| Face Detection Performance of AI by Recorder (Number of Channels) | 2 channels (up to 12 face images/s each channel)          |
| Face Detection Performance of AI by Camera (Number of Channels)   | 16 channels                                               |

### Face Recognition

|                                                                     |                                                                                                                                                                                                              |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Face Database Capacity                                              | Up to 20 face databases with 20,000 images, with a total capacity of 2.5 G. Name, gender, birthday, address, credential type, credential No., countries & regions and state can be added to each face image. |
| Face Recognition Performance of AI by Recorder (Number of Channels) | 1. 16-channel FD (by camera) + FR (by recorder), image stream: 16 face images/s<br>2. 2-channe FD (by recorder) + FR (by recorder), video stream: 12 face images/s                                           |
| Face Recognition Performance of AI by Camera (Number of Channels)   | 16 channels                                                                                                                                                                                                  |

### SMD Plus

|                      |                                                                                                                                          |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| SMD Plus by Recorder | 8 channels: Secondary filtering for human and motor vehicle , reducing false alarms caused by leaves, rain and lighting condition change |
| SMD Plus by Camera   | All channels (32 targets/s)                                                                                                              |

### Video Metadata

|                                                           |                                                                                                                                            |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Metadata Performance of AI by Camera (Number of Channels) | 8 channels                                                                                                                                 |
| Human Attributes                                          | Top color, top type, bottom color, bottom type, hat, bag, age, gender and umbrella                                                         |
| Motor Vehicle Attributes                                  | License plate, plate color, vehicle body, vehicle model, vehicle logo, calling, seatbelt, vehicle interior, vehicle registration location. |
| Non-motor Vehicle Attributes                              | Vehicle model, vehicle color, number of persons, helmet.                                                                                   |

### Vehicle License Plate Comparison

|                                     |                                                                     |
|-------------------------------------|---------------------------------------------------------------------|
| ANPR by Camera (Number of Channels) | All channels (8 targets/s)                                          |
| License Plate Database Capacity     | 1. Create up to 20,000 plate numbers.<br>2. Blocklist and allowlist |

### Audio and Video

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Access Channel            | 16 channels                                                                                                                                                                                                                                                                                                                                                                                                           |
| Network Bandwidth         | AI disabled: 384 Mbps incoming, 384 Mbps recording and 384 Mbps outgoing<br>AI enabled: 200 Mbps incoming, 200 Mbps recording and 200 Mbps outgoing                                                                                                                                                                                                                                                                   |
| Resolution                | 32 MP;24 MP;16 MP;12 MP;8 MP;6 MP;5 MP;4 MP;3 MP;1080p;720p;960p;D1;CIF;QCIF                                                                                                                                                                                                                                                                                                                                          |
| Decoding Capability       | AI disabled: 2-channel 32 MP@25 fps; 2-channel 24 MP@25 fps; 4-channel 16 MP@30 fps; 5-channel 12 MP@30 fps; 8-channel 8 MP@30 fps; 10-channel 6 MP@30 fps; 12-channel 5 MP@30 fps; 16-channel 4 MP@30 fps<br>AI enabled: 1-channel 32 MP@25 fps; 1-channel 24 MP@25 fps; 2-channel 16 MP@30 fps; 4-channel 12 MP@30 fps; 6-channel 8 MP@30 fps; 8-channel 6 MP@30 fps; 8-channel 5 MP@30 fps; 12-channel 4 MP@30 fps |
| Video Output              | 1 VGA, 1 HDMI<br>VGA:1920 × 1080, 1280 × 1024, 1280 × 720<br>HDMI:3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720<br>Heterogeneous video source output for HDMI and VGA                                                                                                                                                                                                                                             |
| Multi-screen Display      | Main screen: 1/4/8/9/16<br>Sub screen: 1/4/8/9/16                                                                                                                                                                                                                                                                                                                                                                     |
| Third-party Camera Access | ONVIF; Panasonic; Sony; Axis; Arecont; Pelco; Canon; Hanwha                                                                                                                                                                                                                                                                                                                                                           |

### Compression Standard

|                   |                                                 |
|-------------------|-------------------------------------------------|
| Video Compression | Smart H.265+; H.265; Smart H.264+; H.264; MJPEG |
| Audio Compression | G.711a; G.711u; PCM; G726                       |

### Network

|                     |                                                                                                                                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Protocol    | HTTP; HTTPS; TCP/IP; IPv4; UDP; NTP; DHCP; DNS; SMTP; UPnP; DDNS; Alarm Server; IP Search (Supports Dahua IP camera, DVR, NVS, etc.); Multicast; P2P; Auto Registration; iSCSI |
| Mobile Phone Access | iOS; Android                                                                                                                                                                   |
| Interoperability    | ONVIF 23.12(Profile T; Profile S; Profile G); CGI; SDK                                                                                                                         |
| Browser             | Chrome; IE; Safari; Edge; Firefox                                                                                                                                              |

## Recording Playback

|                        |                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------|
| Multi-channel Playback | Up to 16 channels                                                                                            |
| Record Mode            | General, motion detection; intelligent; alarm; POS                                                           |
| Backup Method          | USB device and network                                                                                       |
| Playback Mode          | Instant playback, general playback, event playback, tag playback, smart playback (face and motion detection) |

## Storage

|            |     |
|------------|-----|
| Disk Group | Yes |
|------------|-----|

## Alarm

|                   |                                                                                                                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Alarm     | Motion detection; local alarm; alarm box; camera external alarm; network alarm; scene changing; PIR alarm; thermal alarm                                                                                                |
| Anomaly Alarm     | Camera offline; storage error; disk full; IP conflict; MAC conflict; login lock; abnormal behavior of fan; cybersecurity exception                                                                                      |
| Intelligent Alarm | Face detection; perimeter protection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); SMD Plus; stereo analysis; crowd distribution; people counting; ANPR; vehicle density; heat map |
| Alarm Linkage     | Record; snapshot (panoramic); local alarm output; IPC external alarm output; access controller; audio; buzzer; log, preset; email                                                                                       |

## Port

|                |                                                                                                              |
|----------------|--------------------------------------------------------------------------------------------------------------|
| Audio Input    | 1-channel RCA                                                                                                |
| Audio Output   | 1-channel RCA                                                                                                |
| Alarm Input    | 4 channels                                                                                                   |
| Alarm Output   | 2 channels                                                                                                   |
| Disk Interface | 2 SATA ports, each disk can contain up to 20 TB. This limit varies depending on the environment temperature. |
| RS-232         | 1                                                                                                            |
| RS-485         | 1                                                                                                            |
| USB            | 2 (1 front USB 2.0 port, 1 rear USB 3.0 port)                                                                |
| HDMI           | 1                                                                                                            |
| VGA            | 1                                                                                                            |
| Network Port   | 1 (10/100/1000 Mbps Ethernet port, RJ-45)                                                                    |

## General

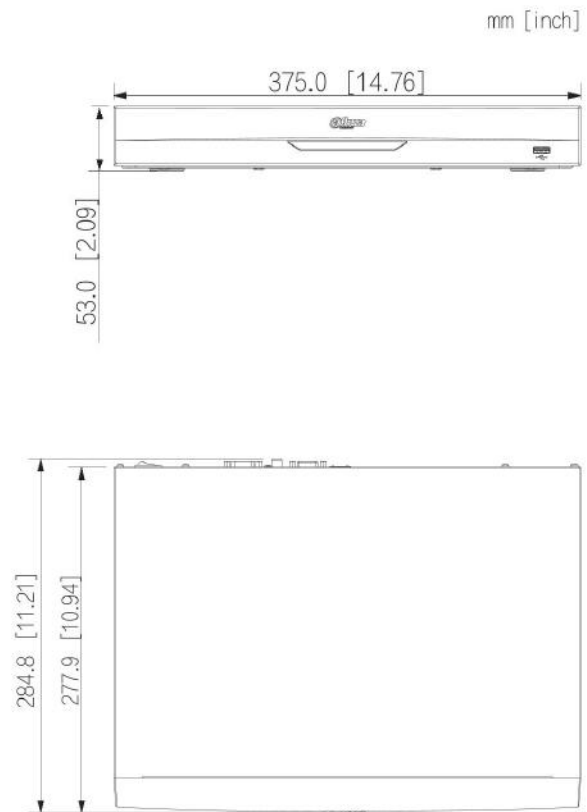
|                       |                                                                      |
|-----------------------|----------------------------------------------------------------------|
| Power Supply          | 12 VDC, 4 A                                                          |
| Power Consumption     | Total output of NVR is ≤ 10 W (without HDD)                          |
| Net Weight            | 1.57 kg (3.46 lb)                                                    |
| Gross Weight          | 2.73 kg (6.02 lb)                                                    |
| Product Dimensions    | 375.0 mm × 284.4 mm × 56.0mm (14.76" × 11.20" × 2.20") (W × D × H)   |
| Packaging Dimensions  | 433.0 mm × 141.0 mm × 366.0 mm (17.04" × 5.55" × 14.41") (W × D × H) |
| Operating Temperature | −10 °C to +55 °C (14 °F to +131 °F)                                  |
| Storage Temperature   | −20 °C to +60 °C (−4 °F to +140 °F)                                  |

|                    |                                                                                                                                                                                                                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Humidity | 10%–93% (RH), non-condensing                                                                                                                                                                                                   |
| Installation       | Rack or desktop                                                                                                                                                                                                                |
| Certifications     | FCC: 47 CFR FCC Part15, SubpartB, Class A<br>CE-EMC: EN 55032:2015+A1:2020;<br>EN IEC 61000-3-2:2019+A1:2021;<br>EN 61000-3-3:2013+A1:2019+A2:2021; EN 55035:2017+A11:2020; EN 50130-4:2011+A1:2014<br>CE-LVD: EN 62368-1:2014 |

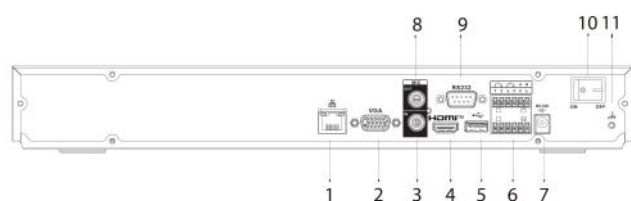
## Ordering Information

| Type                   | Model          | Description                               |
|------------------------|----------------|-------------------------------------------|
| NETWORK VIDEO RECORDER | DHI-NVR5216-EI | Dahua 16CH 2HDD 1U NETWORK VIDEO RECORDER |

## Dimensions (mm[inch])



## Panels



- |                           |                            |
|---------------------------|----------------------------|
| 1 Network Port            | 2 VGA Port                 |
| 3 AUDIO IN, RCA Connector | 4 HDMI Port                |
| 5 USB Port                | 6 Alarm In/Out             |
| 7 Power Input             | 8 AUDIO OUT, RCA Connector |
| 9 RS-232 Port             | 10 Power Switch            |
| 11 Ground                 |                            |