# DHI-NVR5816-16P-EI2

16CH 2U 16PoE 8HDDs WizSense Network Video Recorder

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-EI2 delivers superior performance and advanced recording technology for IP surveillance systems. Featuring a powerful processor with high-speed data processing and robust decoding capabilities, it ensures smooth video streaming. The device incorporates an intuitive modular GUI NVR NEXT that simplifies workflows and enhances operational efficiency. Equipped with an integrated AI chip and Dahua's deep learning algorithms, it enables precise detection, efficient analytics, and reduced false alarms. Its AcuPick technology provides industry-leading one-click accuracy search. Supporting seamless integration with third-party devices and Video Management Software (VMS), the NVR5000-EI2 offers a versatile and scalable surveillance solution.

## Functions

### WizSeek

WizSeek enables natural-language video search for human, vehicle, object, and event with high accuracy, while reducing investigation time by transforming manual reviews into instant results.

### 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.

- Supports Smart H.265+, H.265, Smart H.264+, H.264 and MJPEG decoding formats.
- Max. decoding capability: 40 × 1080p@30 fps or 10 × 8MP@30 fps.
- Max. 448/448/448 Mbps incoming/recording/outgoing bandwidth.
- Supports IP cameras with a resolution up to 32 MP.
- Supports 8K HDMI output.
- Provides access to remote storage devices via iSCSI to expand storage capacity.
- Provides full-channel WizSeek (max 4 targets per sec) when used with cameras that support AcuPick/IVS/Metadata.
- AI by Recorder supports 4-channel face detection and recognition, up to 20 face databases and 30,000 face images; 4-channel video metadata; 8-channel perimeter protection; 16-channel SMD Plus; 4-channel AcuPick.
- AI by Camera supports face detection and recognition, perimeter protection, SMD, metadata, AcuPick, ANPR, stereo analysis, heat map, people counting, PPE detection, smart object detection and smart sound detection.
- Supports EPTZ, and one-click arming and disarming.

### NVR NEXT

With its enhanced system, the NVR introduces NVR NEXT, a user-friendly GUI featuring a modular design to improve operation efficiency and streamline workflows, catering to the needs of small and medium-sized businesses.

### AI Features

Embedded with deep-learning algorithms, the NVR offers advanced AI capabilities, delivering precise detection, efficient analytics, and reduced false alarms.

## Technical Specification

### System

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

### AI

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|---|---|
| AI by Recorder | Face detection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); perimeter protection; SMD Plus; AcuPick; WizSeek; Text-Defined Alarm |
| AI by Camera | Face detection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); perimeter protection; SMD; stereo analysis; crowd distribution; people counting; ANPR; vehicle density; heat map; PPE detection; smart object detection; smart sound detection; AcuPick |
| AcuPick Performance of AI by Recorder (Number of Channels) | 4 channels |
| AcuPick Performance of AI by Camera (Number of Channels) | All channels (32 targets/s) |

### WizSeek

| | |
|---|---|
| Performance | 1. Compatible with cameras that support AcuPick/IVS/Metadata, it can meet full-channel WizSeek (Max 4 targets per sec)<br>2. Modeling capability: up to 345,600 targets per day |
| Search Language | English;TradChinese;Italian;Spanish;Japanese;Russian;French;German;Portugal;Turkey;Poland;Romanian;Hungarian;Finnish;Korean;Dansk;Czechish;Bulgaria;Slovenia;Dutch;Greek;Ukrainian;Swedis;Serbian;Arabic;Thai;Hebrew;Norwegian;SpanishEU;Indonesian;PortugalBR;Vietnam;Cambodia |

### Perimeter Protection

| | |
|---|---|
| Perimeter Performance AI by Recorder (Number of Channels) | 8 channels, 10 IVS rules for each channel |
| Perimeter Performance of AI by Camera (Number of Channels) | All channels (32 targets/s) |

### Face Detection

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|---|---|
| Face Attributes | Gender; age group; glasses; expressions; face mask; beard |
| Face Detection Performance of AI by Recorder (Number of Channels) | 4 channels (up to 12 face images/s each channel) |
| Face Detection Performance of AI by Camera (Number of Channels) | All channels (32 targets/s) |

### Face Recognition

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|---|---|
| Face Database Capacity | Up to 20 face databases with 30,000 images, with a total capacity of 3.75 GB. 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: 24 face images/s<br>2. 4-channel FD (by recorder) + FR (by recorder), video stream: 24 face images/s |
| Face Recognition Performance of AI by Camera (Number of Channels) | All channels (32 targets/s) |

### SMD

| | |
|---|---|
| SMD Plus by Recorder | 16 channels: Secondary filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change |
| SMD by Camera | All channels (64 targets/s) |

### Video Metadata

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|---|---|
| Metadata Performance of AI by Recorder (Number of Channels) | 4 channels, 22 attributes extraction. |
| Metadata Performance of AI by Camera (Number of Channels) | All channels (16 targets/s) |
| People 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

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|---|---|
| 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

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|---|---|
| Access Channel | 16 channels |
| Network Bandwidth | AI disabled: 448 Mbps incoming, 448 Mbps recording and 448 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; 5-channel 16 MP@30 fps; 6-channel 12 MP@30 fps; 10-channel 8 MP@30 fps; 13-channel 6 MP@30 fps; 16-channel 5 MP@30 fps<br>AI enabled: 1-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 |

| | |
|---|---|
| Video Output | 2 VGA, 2 HDMI<br>VGA: 1920 × 1080, 1280 × 1024, 1280 × 720<br>HDMI: 7680×4320, 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720<br>Heterogeneous video source output for HDMI1 and HDMI2<br>Simultaneous video source output for VGA1 and HDMI1<br>Simultaneous video source output for VGA2 and HDMI2 |
| 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

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

## Network

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|---|---|
| Network Protocol | HTTP; HTTPS; TCP/IP; IPv4; IPv6; RTSP; UDP; NTP; DHCP; DNS; SMTP; UPnP; IP Filter; FTP; DDNS; SNMP; Alarm Server; P2P; Auto Registration; IP Search (Supports IP camera, DVR, NVS, etc.); iSCSI; RTMP |
| Mobile Phone Access | iOS; Android |
| Interoperability | ONVIF 25.12 (Profile T; Profile S; Profile G; Profile M); CGI; SDK |
| Browser | Chrome; IE; Safari; Edge; Firefox |

## Recording Playback

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|---|---|
| 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, target Video, video clip, tag playback, smart playback (face and motion detection) |

## Storage

| | |
|---|---|
| Disk Group | Yes |
| RAID | RAID 0/1/5/6/10 |

## Alarm

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|---|---|
| General Alarm | Motion detection; local alarm; alarm box; camera external alarm; network alarm; scene changing; PIR alarm; thermal alarm |
| Anomaly Alarm | Error (no disk, disk error, low space, RAID exception, low quota space; abnormal disk health; network disconnection; IP conflict; MAC conflict; abnormal fan speed); video loss; video tampering; camera offline; audio detection; alarm box offline |
| 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; PPE detection; smart object detection; smart sound detection |
| Alarm Linkage | Record; snapshot (panoramic); local alarm output; IPC external alarm output; audio; buzzer; log, preset; email |

## Port

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|---|---|
| Audio Input | 1-channel RCA |
| Audio Output | 2-channel RCA |
| Alarm Input | 16 channels |
| Alarm Output | 8 channels (1-channel 12 V 1 A output ) |
| Disk Interface | 8 SATA ports, each disk can contain up to 26 TB.<br>This limit varies depending on the environment temperature. |
| eSATA | 1 |
| RS-232 | 1 |
| RS-485 | 1 |
| RS-422 | 1 |
| USB | 4 (2 front USB 2.0 port, 2 rear USB 3.0 port) |
| HDMI | 2 |
| VGA | 2 |
| Network Port | 1 (10/100/1000 Mbps Ethernet port, RJ-45) |
| PoE Port | 16 ports, 10/100 Mbps, IEEE 802.3 af/at, 1-8 ports support ePoE |

## General

| | |
|---|---|
| Power Supply | 100–240 VAC, 50/60 Hz |
| Power Consumption | Total output of NVR is ≤ 13 W (without HDD) Total output power of PoE is 150 W, the maximum output power of a single port is 25.5 W |
| Net Weight | 6.63 kg (14.62 lb) |
| Gross Weight | 9.22 kg (20.33 lb) |
| Product Dimensions | 440.0 mm × 458.4 mm × 94.9 mm (17.32" × 18.05" × 3.73") (W × D × H) |
| Packaging Dimensions | 570.0 mm × 570.0 mm × 226.0 mm (22.44" × 22.44" × 8.90") (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 |
| Certifications | 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-NVR5816-16P-EI2 | 16CH 2U 16PoE 8HDDs WizSense Network Video Recorder |
| Accessories (Optional) | DHI-ARB1606 | Alarm Box |
| | ESS1504C | 4 Bay eSATA Extension Cabinet |
| | DHI-RailBracket60/L-Shaped | Dahua Server Cabinet Rail Bracket |

## Accessories

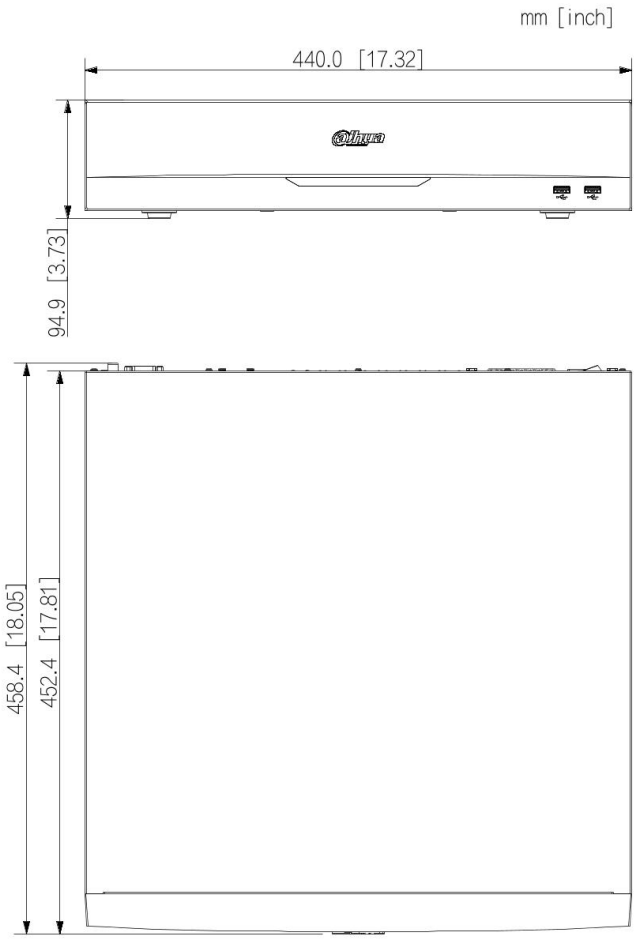
Optional:

DHI-ARB1606
Alarm Box

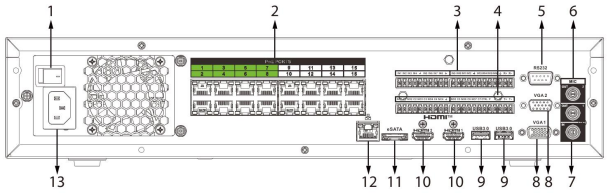
ESS1504C
4 Bay eSATA Extension Cabinet

DHI-RailBracket60/L-Shaped
Dahua Server Cabinet Rail Bracket

## Dimensions (mm[inch])




## Panels




1 Power Switch
2 PoE Ports
3 Alarm In/Out
4 RS-485 Port
5 RS-232 Port
6 AUDIO OUT, RCA Connector
7 AUDIO IN, RCA Connector
8 VGA Port
9 USB 3.0 Port
10 HDMI Port
11 eSATA Port
12 Network Port
13 Power Input

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