



# NVR304L-32-16P-EI

32CH 1.5U 16PoE 4HDDs Network Video Recorder



ENS Diamond 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.

## Series Overview

NVR4000-EI series is a new generation of network recorders that offers powerful decoding capabilities, and strong bandwidth. It features high-precision face recognition, perimeter protection, and SMD (Smart Motion Detection), which can distinguish target vehicles and humans from other types in real time. When connected with select IPC cameras, Quick Pick technology becomes available, allowing human and vehicle targets to be easily searched for and picked out. This network recorder is not only cost-effective, but also compatible with a wide variety of third-party devices, making it a great choice for small and medium-sized businesses.

## Functions

### 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

Face Recognition technology extracts the features of captured faces and compares them with those in face database to recognize the person identity.

### Perimeter Protection

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

- Smart H.265+/H.265/Smart H.264+/H.264/MJPEG decoding format.
- Access, storage or forwarding at 256 Mbps (180 Mbps when AI function enabled).
- Max. decoding capability: 16 × 1080p@30 fps. Supports adaptive decoding.
- AI by NVR: 1-channel face detection and recognition; 2-channel perimeter protection; up to 10 face databases and 20,000 face images; 4-channel SMD Plus.
- AI by Camera: Face detection and recognition, perimeter protection; SMD Plus; ANPR; people counting; stereo analysis; heat map.
- Connected to the third-party network cameras.
- Security baseline 2.3.



**SMD Plus** With intelligent algorithm, 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.

### AI Search

With AI search, operators can search for videos by the attributes of targets and event types, which helps them to quickly and efficiently investigate where and when targets appeared and events took place.

### Heat Map by Camera

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, 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.

### Quick Pick

Quick Pick technology can enable users to quickly pick up the human/vehicle targets that they are interested in, which facilitates retrieval from SMD events.

**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; perimeter protection; SMD Plus; ANPR; people counting; stereo analysis; heat map |

## Perimeter Protection

|  |   |
|--|---|
| Perimeter Performance AI by Recorder (Number of Channels)  | 2 channels, 10 IVS rules for each channel |
| Perimeter Performance of AI by Camera (Number of Channels) | 8 channels                                |

## Face Detection

|   |   |
|---|---|
| Face Attributes   | Gender; age group; glasses; expressions; face mask; beard |
| Face Detection Performance of AI by Recorder (Number of Channels) | 1 channel (up to 12 face images/s each channel)           |
| Face Detection Performance of AI by Camera (Number of Channels)   | 8 channels  |

## Face Recognition

|   |  |
|---|--|
| Face Database Capacity  | Up to 10 face databases with 200,00 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) | 8-channel FD (by camera) + FR (by recorder), image stream: 12 face images/s<br>1-channel FD (by recorder) + FR (by recorder), video stream: 12 face images/s   |
| Face Recognition Performance of AI by Camera (Number of Channels)   | 8 channels   |

## SMD Plus

|                      |   |
|----------------------|---|
| SMD Plus by Recorder | 4 channels: Secondary filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change |
| SMD Plus by Camera   | 8 channels  |

## Vehicle License Plate Comparison

|                                     |   |
|-------------------------------------|---|
| ANPR by Camera (Number of Channels) | 4 channels  |
| License Plate Database Capacity     | 1. Create up to 20,000 plate numbers.<br>2. Blocklist and allowlist |

## Audio and Video

|                |             |
|----------------|-------------|
| Access Channel | 32 channels |
|----------------|-------------|

|                           |  |
|---------------------------|--|
| Network Bandwidth         | AI disabled: 256 Mbps incoming, 256 Mbps recording and 256 Mbps outgoing<br>AI enabled: 180 Mbps incoming, 180 Mbps recording and 180 Mbps outgoing  |
| Resolution                | 16 MP; 12 MP; 8 MP; 6 MP; 5 MP; 4 MP; 3 MP; 1080p; 960p; 720p; D1; CIF   |
| Decoding Capability       | AI disabled:<br>2-channel 16 MP@30 fps; 2-channel 12 MP@30 fps; 4-channel 8 MP@30 fps; 6-channel 5 MP@30 fps; 8-channel 4 MP@30 fps; 16-channel 1080p@30 fps<br>AI enabled:<br>1-channel 16 MP@30 fps; 2-channel 12 MP@30 fps; 3-channel 8 MP@30 fps; 4-channel 5 MP@30 fps; 6-channel 4 MP@30 fps; 12-channel 1080p@30 fps<br>1 HDMI, 1 VGA<br>HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720<br>VGA: 1920 × 1080, 1280 × 1024, 1280 × 720<br>*Simultaneous/heterogeneous video sources output for VGA and HDMI is configurable.<br>1st Screen: 1/4/8/9/16/25/36<br>2nd Screen: 1/4/8/9/16 |
| Video Output              | Panasonic, Sony, Samsung, Axis, Pelco, Arecont, ONVIF, Canon   |
| Multi-screen Display      | Panasonic, Sony, Samsung, Axis, Pelco, Arecont, ONVIF, Canon   |
| Third-party Camera Access |  |

## 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/IPv6; UPnP; SNMP; UDP; SMTP; NTP; DHCP; DNS; IP Filter; PPPoE; DDNS; FTP; Alarm Server; IP Search P2P; auto register |
| Mobile Phone Access | iOS; Android   |
| Interoperability    | ONVIF 22.06(Profile T; Profile S; Profile G); CGI; SDK   |
| Browser             | Chrome; IE9 and later; Firefox   |

## Recording Playback

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

## Storage

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

## Alarm

|                   |  |
|-------------------|--|
| General Alarm     | Motion detection; privacy masking; video loss; scene changing; PIR alarm; IPC external alarm                         |
| Anomaly Alarm     | Camera disconnection; storage error; disk full; IP conflict; MAC conflict; login locked; and cybersecurity exception |
| Intelligent Alarm | Face detection; face recognition; perimeter protection; SMD Plus; people counting; stereo analysis; heat map         |
| Alarm Linkage     | Record; snapshot; IPC external alarm output; audio; buzzer; log; preset; email                                       |

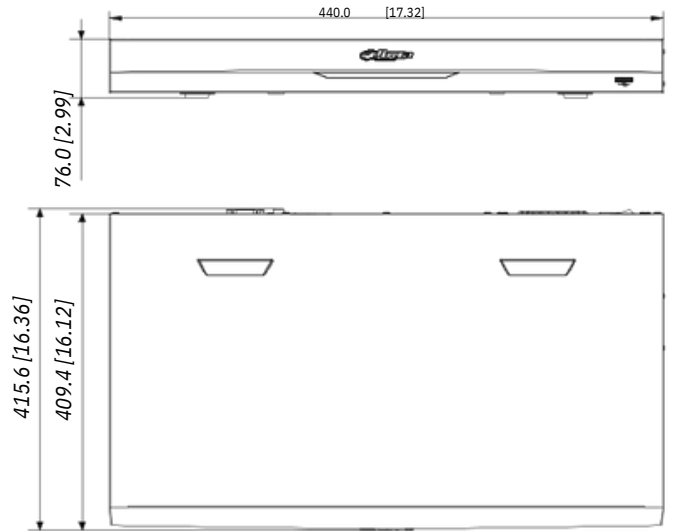
## Port

|             |               |
|-------------|---------------|
| Audio Input | 1-channel RCA |
|-------------|---------------|

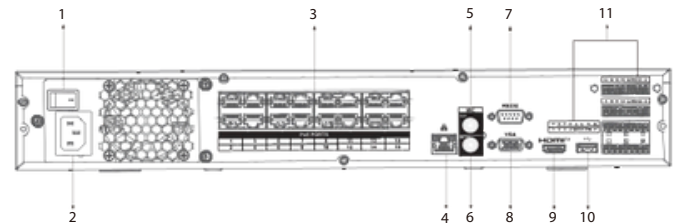


|                       |  |
|-----------------------|--|
| Audio Output          | 1-channel RCA  |
| Alarm Input           | 16 channels  |
| Alarm Output          | 4 channels   |
| HDD Interface         | 4 SATA ports, up to 16 TB. The maximum HDD capacity varies with environment temperature.   |
| 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)  |
| PoE Port              | 16 ports, 10/100 Mbps, IEEE 802.3 af/at  |
| <b>General</b>        |  |
| Power Supply          | 100–240 VAC, 50-60 Hz  |
| Power Consumption     | Total output of NVR is <10 W (without HDD)<br>Total output power of PoE is 150W, the maximum output power of a single port is 25.5 W   |
| Net Weight            | 4.82 kg (10.63 lb)   |
| Gross Weight          | 6.78 kg (14.95 lb)   |
| Product Dimensions    | 440.0 mm × 415.6 mm × 76.0 mm (17.32" × 16.36" × 2.99") (W × D × H)  |
| Packaging Dimensions  | 529.0 mm × 499.0 mm × 211.0 mm (20.83" × 19.65" × 8.31") (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)   |
| Installation          | Rack or desktop  |
| Certifications        | FCC: 47 CFR FCC Part15, SubpartB, Class A<br>CE-EMC: EN 55032:2015+A1:2020; EN IEC 61000-3-2:2019+A1:2021; 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 |

### Dimensions (mm[inch])



### Panels



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

### Ordering Information

| Type            | Model             | Description           |
|-----------------|-------------------|-----------------------|
| 32 Channels NVR | NVR304L-32-16P-EI | 32CH 1.5U 16PoE 4HDDs |