

NVR5416-16P-EI

16 Channel AI POE Network Video Recorder



Overview

New NVR5000-EI network video recorder delivers excellent performance and high recording quality that is ideally suitable for IP video surveillance applications. This NVR adopts powerful processor, providing the capability of 4K resolution processing for applications where image details are highly required. Additionally, the NVR can be served as edge storage, central storage or backup storage with an intuitive shortcut operation menu for remote management and control.

With build-in deep learning module, NVR5000-EI series products adopt video image structuring technology based on deep learning algorithms, achieving high-precision human face recognition and perimeter protection. By applying deep learning artificial intelligence, NVR5000-EI allows users to focus on what matters most, improves event response time and helps make video actionable.

The NVR is compatible with numerous third-party devices, which make it the perfect solution for surveillance systems that work independently of video management system (VMS).

Functions

Perimeter Protection

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

Real Time Face Recognition

Video stream & picture stream real time face recognition. Facial attributes analysis features including gender, age, expression, glasses, moustache, mouth mask. Identify people and also capture, record faces with metadata. Facial feature filtering while real time display, only show faces with target features.

Face Database Management

Configurable multiple face databases. Powerful face database management. Face database can be applied to video channels independently. Name, gender, birthday, address, certificate type, certificate No., countries®ions and state can be added to each face picture.

Common/Stranger Mode

NVR5000-EI supports common and stranger mode. In stranger mode, when NVR detects a strange face (not in device's face database), it can trigger alarm, buzzer, snapshot, record, etc. Similarity threshold can be set manually. This function is developed for important infrastructure sites for which access control is critical.

AI Search

Support search by metadata of human and vehicles. Support uploading face pictures to NVR and compare them with recorded faces in NVR by similarity. Enable operators to quickly and easily search through multi channels and long duration, efficiently find out when and where a person of interest appeared.

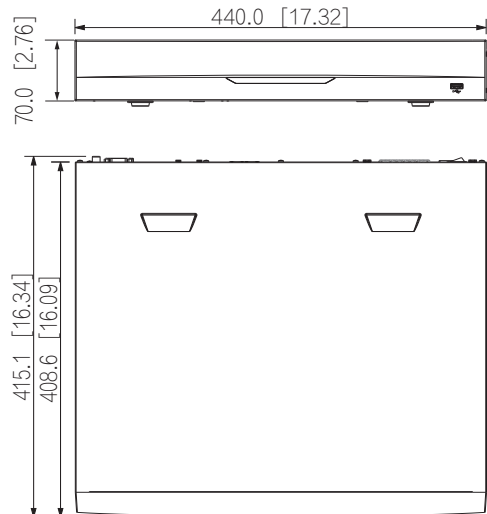
ANPR

Automatic Number Plate Recognition available for convenient entrance/ exit management. Support license plate recognition (working with ITC camera), black/white list import/export, add/delete B/W list number, search result from recorded video.

Point of Sale (POS)

Ideal for grocery and retail stores, the optional POS solution allows the NVR to receive a POS transaction via corresponding video. This feature allows merchants to analyze specific transactions via the Fuzzy search algorithm.

Dimensions



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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 2. 2-channel 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. 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 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 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	2 VGA, 2 HDMI VGA:1920 × 1080, 1280 × 1024, 1280 × 720 HDMI:3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720 Heterogeneous video source output for HDMI1 and HDMI2 Simultaneous video source output for VGA1 and HDMI1 Simultaneous video source output for VGA2 and HDMI2
Multi-screen Display	Main screen: 1/4/8/9/16 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

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Network

Network Protocol	HTTP; HTTPS; TCP/IP; IPv4/IPv6; UDP; NTP; DHCP; DNS; SMTP; RTSP; UPnP; DDNS; SNMP; Alarm Server; IP Search (Supports 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
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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	2-channel RCA
Alarm Input	16 channels
Alarm Output	6 channels (1-channel 12 V 1 A output)
Disk Interface	4 SATA ports, each disk can contain up to 20 TB. This limit varies depending on the environment temperature.
eSATA	1
RS-232	1
RS-485	1 (half-duplex serial communication)
USB	3 (1 front USB 2.0 port, 2 rear USB 3.0 ports)
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
Product Dimensions	440.0 mm × 415.1 mm × 70.0 mm (17.32" × 16.34" × 2.76") (W × D × H)
Packaging Dimensions	530.0 mm × 500.0 mm × 210.0 mm (20.87" × 19.69" × 8.27") (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 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 CE-LVD: EN 62368-1:2014