DHI-NVR4416-4KS2/I
16 Channel 1.5U 4HDDs WizSense Network Video Recorder

- Smart H.265+/H.265/Smart H.264+/H.264/MJPEG decoding format
- Access, storage or forwarding at 256 Mbps (160 Mbps when AI function enabled)
- Max. decoding capability: 10 × 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
- Security baseline 2.1

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.

| Face Detection | Face Recognition | Perimeter Protection | SMD Plus | Search by Image | IVS |
| Heat Map | ANPR | People Counting | | | |

Series Overview

This AI network video recorder is a highly cost-effective product, providing functions such as local live view, multi-screen display, real-time storage on local HDD, fast operation by mouse, and remote management and control. This product is suitable for face detection and recognition at entrances and exits, and perimeter protection of people and vehicles.

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

Dahua 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.

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.

AI Search

Support AI seach by metadata of different targets or uploading face pictures to device and comparing them with recorded faces 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 appeard.

Smart Fan

The NVR is equipped with a smart fan to achieve high cooling efficiency. It automatically turns on or turns off according to CPU and ambient temperature. The fan is long-lasting and low noise, reducing maintenance costs and improving the user experience.

Technical Specification

System

Main Processor	Industrial-grade embedded processor
Operating System	Embedded Linux
Operation Interface	Web; local GUI

AI

AI by Camera	Face detection; face recognition; perimeter protection; SMD Plus; ANPR; people counting; stereo analysis; heat map
AI by Device	Face detection; face recognition; perimeter protection; SMD Plus

Perimeter Protection

Perimeter Performance AI by Device(Number of Channels)	2
Perimeter Performance of AI by Camera (Number of Channels)	8

Face Detection

Face Attributes	6 attitudes: Gender; age group (6); glasses; expressions (8); mouth mask; beard
Face Detection Performance of AI by Device (1080P) (Number of Channels)	1 (up to 12 face images/second)
Face Detection Performance of AI by Camera (Number of Channels)	8

Face Recognition

Face Database Capacity	Up to 10 face databases with 20,000 images
Face Recognition Performance of AI by Device (1080P) (Number of Channels)	1 (up to 4 face images/second)
Face Recognition Performance of AI by Camera (Number of Channels)	8

SMD Plus

SMD Plus by Device	4
SMD Plus by Camera	16-channel SMD Plus (AI by camera): Detects tripwire and intrustion of human or vehicle; filters false alarms caused by leaves, raindrops and change of brightness away

ANPR

ANPR by Camera	4

Video

Access Channel	16 channels
Network Bandwidth	AI off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps AI on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps
Resolution	16MP; 12MP; 8MP; 5MP; 4MP; 3MP; 2MP; 720p; D1

Decoding Capability	AI off: 1 channel × 16MP@20 fps; 1 channel × 12MP@20 fps; 2 channels × 8MP@30 fps; 4 channels × 5MP@30 fps; 5 channels × 4MP@30 fps; 10 channels × 1080p@30 fps AI on: 1 channel × 16MP@20 fps; 1 channel × 12MP@20 fps; 2 channels × 8MP@30 fps; 3 channel × 5MP@30 fps; 4 channels × 4MP@30 fps ; 8 channels × 1080p@30 fps
Video Output	1-ch VGA output and 1-ch HDMI output; simultaneous/ heterogeneous video sources output for VGA and HDMI is configurable
Multi-screen Display	1st Screen: 1/4/8/9/16 2nd Screen: 1/4/8/9
Third Party Camera Access	Panasonic; Sony; Samsung; Axis, Pelco; Arecont; ONVIF; Canon; RTSP

Compression

Video	Smart H.265+; Smart H.264+; H.265; H.264; MJPEG
Audio	PCM; G.711A; G.711U; G.726

Network

Network Protocol	HTTP; HTTPS; TCP/IP; IPv4/IPv6; UPnP; SNMP; RTSP; UDP; SMTP; NTP; DHCP; DNS; IP Filter; PPPoE; DDNS; FTP; Alarm Server; IP Search (Support Dahua IP camera; DVR; NVS; etc.); P2P; auto register
Mobile Phone Access	Android; iOS
Interoperability	ONVIF(profile T/S/G); CGI; SDK
Browser	Chrome; IE9 or later; firefox

Record Playback

Multi-channel Playback	Up to 16 channels
Record Mode	Manual; schedule (general; MD; alarm; MD & alarm; intelligent)
Storage Method	Local HDD; network
Backup	USB device
Playback Function	1. Play; pause; stop; fast forward; fast backward; rewind; play by frame 2. Full screen; backup (cut/file) ; partially enlarge; audio on/off

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

External Port

HDD	4 SATA ports, up to 10 TB. The maximum HDD capacity varies with environment temperature
USB	1 front USB 2.0 port, 1 rear USB 3.0 port
HDMI	1 (max. resolution: 4K)
VGA	1
Network	2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports
RCA Input	1

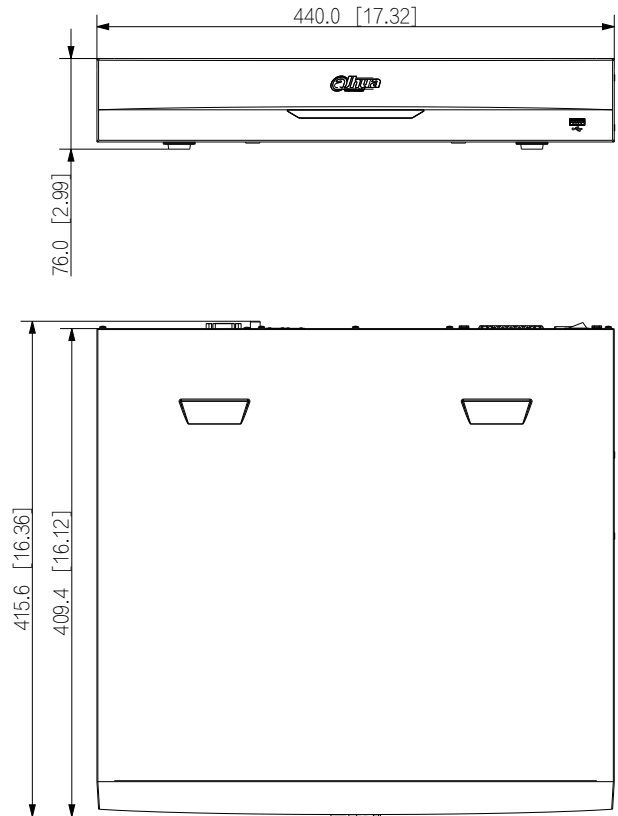|	
RCA Output	1
Alarm Input	16
Alarm Output	6
RS-232	1 channel, used to debug and pass through serial data
RS-485	1 channel, used to control PTZ, and it supports multiple protocols

General Parameter

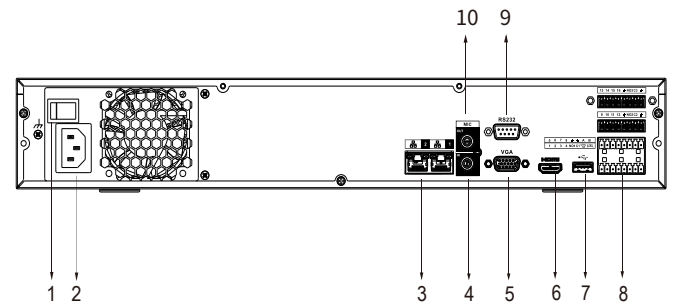|	
Power Supply	Single, 100 V–240 V AC, 50 Hz–60 Hz
Power Consumption	Total output of NVR is ≤ 8 W (without HDD)
Net Weight	4.25 kg (9.35 lb)
Gross Weight	6.48 kg (18.41 lb)
Product Dimensions	440.0 mm × 415.6 mm x 76.0 mm (17.32" × 16.36" × 2.99") (W × L × H)
Package Dimensions	529.0 mm × 499.0 mm × 211.0 mm (20.83" × 19.65" × 9.31") (W × L × H)
Operating Conditions	−10 °C to +55 °C (+10 °F to +131 °F)
Storage Conditions	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	10%–93%
Storage Humidity	30%–85%
Operating Altitude	3,000 m (9,843 ft)
Installation	Desktop/Rack mount
Certifications	FCC:47 CFR FCC Part15,SubpartB,Class A CE-EMC:EN 55032:2015,Class A;EN IEC 61000-3-2:2019;EN 61000-3-3:2013+A1:2019;EN 55024:2010+A1:2015;EN 55035:2017;EN 50130-4:2011+A1:2014 CE-LVD:EN 62368-1:2014+A11:2017

Ordering Information

Type	Model	Description
16 Channel WizSense NVR	DHI-NVR4416-4KS2/I	16 Channel 1.5U 4HDDs WizSense Network Video Recorder

Dimensions (mm[inch])

440.0 [17.32]

76.0 [2.99]

415.6 [16.36]
409.4 [16.12]

Panels

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