



DHI-NVR4416-4KS2/I

16 Channel 1.5U 4HDDs 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

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.

- · Smart H.265+/H.265/Smart H.264+/H.264/MJPEG decoding format
- Access, storage or forwarding at 256 Mbps (160 Mbps when Al function enabled)
- Max. decoding capability: 10 × 1080p@30 fps. Supports adaptive decoding
- Al 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
- Al by Camera: Face detection and recognition, perimeter protection; SMD Plus; ANPR; people counting; stereo analysis; heat map
- · Security baseline 2.1



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.

System	Technical Specification				
Main Processor Operation Processor Operation Interface Method Int	System		Decoding Capability		
Coperation Number of Chamnels Chamnel	Main Processor	Industrial-grade embedded processor	5 1,	Al on: 1 channel × 16MP@20 fps; 1 channel × 12MP@20 fps; 2 channels × 8MP@30 fps; 3 channel × 5MP@30 fps;	
Potential interface Wilsh Eval QUI Potential interface P	Operating System	Embedded Linux			
All by Camera Pack detections face recognition; permetter protections All by Device Spart detections face recognition; permetter protections Compression	Operation Interface	Web; local GUI	Video Output	heterogeneous video sources output for VGA and HDMI	
Al by Camera Face detection: Face recognition: perimeter protection; SoD Purps, ARPR perips: camangs; arrear analyse; has map	Al		Multi-screen Display		
Perimeter Protection Perimeter Protection Audio PCM; 6,7114; 6,7111; 6,7219; 6,726 Audio PCM; 6,7114; 6,7111; 6,7219; 6,726 Audio PCM; 6,7114; 6,7111; 6,7219; 6,726 Audio PCM; 6,7114; 6,7211; 6,7211; 6,726 Audio PCM; 6,7114; 6,7111; 6,726 Audio PCM; 6,7114; 6,7111; 6,7121;	Al by Camera	SMD Plus; ANPR; people counting; stereo analysis; heat	Third Party Camera Access	Panasonic; Sony; Samsung; Axis, Pelco; Arecont; ONVIF;	
Perimeter Protection Audio PCM; G7114; G7114	Al by Device		Compression		
Alt by Device (Number of Channels) Perimeter Performance of Alt by Country (Number of Channels) Face Detection 6 attibutes: Gender; age group (6); glasses; expressions (Birmouth mask beard Face Detection Face Attributes 6 attibutes: Gender; age group (6); glasses; expressions (Birmouth mask beard Face Detection Face Detection Face Detection Face Detection Face Detection 1 (up to 17 face images/second) 2 (up to 17 face images/second) 3 (up to 17 face images/second) 4 (up to 17 face images/second) 5 (up to 19 face databases with 20,000 images) Face Recognition Face Batabase Capacity Face Recognition Face Batabase Capacity Face Recognition Face Recogn	Perimeter Protection		Video	Smart H.265+; Smart H.264+; H.265; H.264; MJPEG	
Perimeter Performance of Al by Camera (Number of Channels) Face Detection Face Attributes Sattibutes: Gender; age group (6); plasses; copressions Record Protocol Summar (Number of Channels) Record Protocol Summar (Number of Channels) Record Protocol Record Protocol			Audio	PCM; G.711A; G.711U; G.726	
Ab ty Camera (Number of Channels) Face Detection Face Attributes 6 Att		2	Network		
Mobile Phone Access Android-ji-OS Androi	Al by Camera (Number of Channels)	8	Network Protocol	SMTP; NTP; DHCP; DNS; IP Filter; PPPoE; DDNS; FTP; Alarm Server; IP Search (Support Dahua IP camera; DVR;	
Face Detection	Face Detection		Mobile Phone Access	Android; iOS	
Performance of Al by Device (180P) (Number of Channels) Face Detection Face Postabase Capacity Face Recognition Performance of Al by Device (180P) (Number of Channels) Face Recognition Performance of Al by Camera (Number of Channels) 8 Alarm SmD Plus by Device SmD Plus by Camera ANDPR ANPR ANPR ANPR Al off: Access: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Forward: 261 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 261 Mctwork Part of Channels Anther Channels Anther Channels Anther Channels Al off: Access: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 261 Mctwork Part of Channels Anther Channels Anther Channels Anther Channels Anther Channels Al off: Access: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Forward: 256 Mbps; Storage: 160 Mbps; Forward: 256 Mbps	Face Attributes		Interoperability	ONVIF(profile T/S/G); CGI; SDK	
Device (1980P) (Number of Channels) Face Detection Performance of Al by Camera (Number of Channels) Face Recognition Face Batabase Capacity Face Recognition Fa		1 (up to 12 face images/second)	Browser	Chrome; IE9 or later; firefox	
Performance of AI by Camera (Number of Channels) Face Recognition Face Database Capacity Up to 10 face databases with 20,000 images Backup USB device 1. Plays, 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 channels) SMD Plus SMD Plus by Device 1. Plays, pause; stop; fast forward; fast backward; rewind; play by frame 2, Full screen; backup (cut/file); partially enlarge; audio on/off Alarm General Alarm General Alarm Motion detection; privacy masking; video loss; scene changing; PiR alarm; IPC external alarm Anomaly Alarm SMD Plus by Device 4 16-channels 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 Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps	, , ,		Record Playback		
Record Mode Manual, schedule (general; MD; slarm; MD & alarm; intelligent) Face Recognition Face Database Capacity Face Recognition Face Recognition Face Recognition Performance of AI by Device (1080P) (Number of Channels) Face Recognition Performance of AI by Device (1080P) (Number of Channels) SMD Plus Motion detection; privacy masking; video loss; scene changing; PIR alarm; IPC external alarm General Alarm Motion detection; privacy masking; video loss; scene changing; PIR alarm; IPC external alarm Anomaly Alarm SMD Plus by Device 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 SATA ports, up to 10 Te. The maximum HDD capacity varies with environment temperature Video Access Channel 16 channels AI off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps 256 Mbps Al orn. Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network Bandwidth Al orn. Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network 2 Ri-45 10/100/1000 Mbps self-adaptive Ethernet ports.			Multi-channel Playback	Up to 16 channels	
Face Recognition Performance of Al by Device (1080P) (Number of Channels) Face Recognition Performance of Al by Device (1080P) (Number of Channels) SMD Plus SMD Plus SMD Plus SMD Plus by Device 4 16-channel SMD Plus (Al by camera) 16-channel SMD Plus (Al 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 A Off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 160 Mbps A log Methods A log Methods Backup US B device 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 Camera disconnection; storage error; disk full; IP conflict; MAC conflict; login locked; and cybersecurity exception Intelligent Alarm Smodular Alarm Alarm Linkage Record; snapshot; IPC external alarm output; audio; buzzer; log; preset; email Alarm Linkage Network Bandwidth A off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps; Storage: 160 Mbps; Forward: 16	Camera (Number of	8	Record Mode		
Face Recognition Performance of Al by Device (1080P) (Number of Channels) Face Recognition Performance of Al by Device (1080P) (Number of Channels) Face Recognition Performance of Al by Camera (Number of Channels) SMD Plus SMD Plus SMD Plus by Device 4 If-channel SMD Plus (Al 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 If-channels Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 16 OMbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Playback Function 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 Anomaly Alarm Anomaly Alarm Camera disconnection; storage error; disk full; IP conflict; MAC conflict; login locked; and cybersecurity exception 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 WhD Video 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	Face Recognition		Storage Method	Local HDD; network	
Performance of Al by Device (1080P) (Number of Channels) Face Recognition Performance of Al by Camera (Number of Channels) SMD Plus SMD Plus by Device 4 16-channel SMD Plus (Al by Camera) SMD Plus by Camera 16-channel SMD Plus (Al by Camera): Detects tripwire and intrustion of human or vehicle; filters false alarms caused by leaves, raindrops and change of brightness away ANPR by Camera ANPR by Camera 4 Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps; Al on: Access Channel Network Bandwidth Antice (1080P) (Number of Channels) All off: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps; Forward: 160 Mbps Playback Function Playback Function Playback Function Playback Function Alarm Playback Function Alarm Alarm Motion detection; privacy masking; video loss; scene changing; PIR alarm; IPC external alarm Camera disconnection; storage error; disk full; IP conflict; MAC conflict, login locked; and cybersecurity exception 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 Wideo 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	Face Database Capacity	Up to 10 face databases with 20,000 images	Backup	USB device	
Performance of Al by Camera (Number of Channels) SMD Plus SMD Plus SMD Plus 4 16-channel SMD Plus (Al by camera): Detects tripwire and intrustion of human or vehicle; filters false alarms caused by leaves, raindrops and change of brightness away ANPR by Camera ANPR by Camera 4 ANPR by Camera 4 Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps; Forward: 160 Mbps Al off: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Alarm Linkage Alarm Motion detection; privacy masking; video loss; scene changing; PIR alarm; PIPC external alarm of changing; PIR alarm; PIPC external protection; SMD Plus (pign locked; and cybersecurity exception) Intelligent Alarm Face detection; face recognition; perimeter protection; SMD Plus; people counting; stereo analysis; heat map and intrustion of human or vehicle; filters false alarms and intrustion of human or vehicle; filters false	Performance of AI by Device (1080P) (Number	1 (up to 4 face images/second)	Playback Function	play by frame 2. Full screen; backup (cut/file) ; partially enlarge; audio	
Camera (Number of Channels) SMD Plus SMD Plus Anomaly Alarm Camera disconnection; storage error; disk full; IP conflict; MAC conflict; login locked; and cybersecurity exception SMD Plus by Device 4 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 HDD 4 SATA ports, up to 10 TB. The maximum HDD capacity varies with environment temperature Video Access Channel 16 channels Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps AI on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network Bandwidth Anomaly Alarm Camera disconnection; storage error; disk full; IP conflict; MAC conflict; login locked; and cybersecurity exception Intelligent 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 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			Alarm	Alarm	
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SMD Plus by Camera 16-channel SMD Plus (Al 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 HDD 4 SATA ports, up to 10 TB. The maximum HDD capacity varies with environment temperature Video USB 1 front USB 2.0 port, 1 rear USB 3.0 port HDMI 1 (max. resolution: 4K) Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps 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			Anomaly Alarm	, , , , ,	
ANPR by Camera ANPR by Camera	SMD Plus by Device	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	Intelligent Alarm		
ANPR by Camera 4 SATA ports, up to 10 TB. The maximum HDD capacity varies with environment temperature Video USB 1 front USB 2.0 port, 1 rear USB 3.0 port HDMI 1 (max. resolution: 4K) Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network Network 2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports	SMD Plus by Camera		Alarm Linkage		
Video USB 1 front USB 2.0 port, 1 rear USB 3.0 port Access Channel 16 channels HDMI 1 (max. resolution: 4K) Network Bandwidth Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps 256 Mbps 256 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Storage: 160 Mbps; Forward: Network 2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports	ANPR		External Port		
Access Channel 16 channels HDMI 1 (max. resolution: 4K) Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps 256 Mbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network Network 2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports	ANPR by Camera	4	HDD		
Network Bandwidth Al off: Access: 256 Mbps; Storage: 256 Mbps; Forward: 256 Mbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network 1 (max. resolution: 4K) VGA 1 Network 2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports	Video		USB	1 front USB 2.0 port, 1 rear USB 3.0 port	
Network Bandwidth 256 Mbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network 2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports	Access Channel	16 channels	НДМІ	1 (max. resolution: 4K)	
Network Bandwidth Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward: 160 Mbps Network 2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports	Network Bandwidth	256 Mbps Al on: Access: 160 Mbps; Storage: 160 Mbps; Forward:	VGA	1	
Resolution 16MP; 12MP; 8MP; 5MP; 4MP; 3MP; 2MP; 720p; D1 RCA Input 1					
	Resolution	16MP; 12MP; 8MP; 5MP; 4MP; 3MP; 2MP; 720p; D1	RCA Input	1	

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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

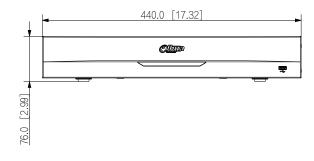
General Parameter

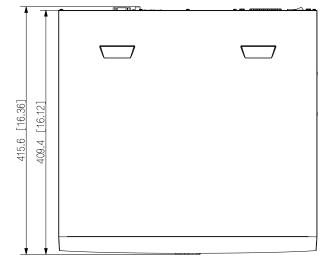
Power Supply	Single, 100 V–240 V AC, 50 Hz–60 Hz	
Power Consumption	Total output of NVR is \leq 8 W (without HDD)	
Net Weight	4.25 kg (9.35 lb)	
Gross Weight	6.48 kg (18.41 lb)	
Product Dimensions	440.0 mm × 415.6 mm x 76.0 mm (17.32" × 16.36" × 2.99") (W × L × H)	
Package Dimensions	529.0 mm × 499.0 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

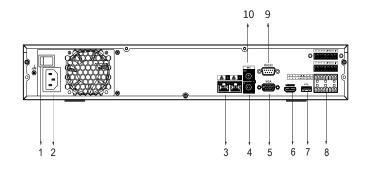
Туре	Model	Description
16 Channel	DHI-NVR4416-	16 Channel 1.5U 4HDDs WizSense
WizSense NVR	4KS2/I	Network Video Recorder

Dimensions (mm[inch])





Panels



- 1 Power Switch
- 3 Network Ports
- 5 VGA Port
- 7 USB Port9 RS-232 Port
- 2 Power Input
- 4 AUDIO IN, RCA Connector
- 6 HDMI Port
- 8 Alarm In/Out
- 10 AUDIO OUT, RCA Connector