

# 256-channel Intelligent Video Surveillance Server

## 3U 16 HDD Network Video Recorder and Server



### Wiz Mind

WizMind Series devices offer the full complement of Dahua Analytics+ functions for comprehensive, human-oriented analytic solutions. WizMind Series products deliver perimeter protection, vehicle and crowd density statistics, video metadata, and advanced people counting with heat map functionality. WizMind is ideal for complex applications with demanding requirements that need advanced analytic capabilities.

#### System Overview

The Dahua Intelligent Video Surveillance Server Series (IVSS) combines Deep Learning algorithms, a powerful Graphics Processing Unit (GPU), and an advanced Network Video Recorder (NVR) into an all-in-one Artificial Intelligence server. Dahua built the IVSS series from the ground-up as a dedicated AI surveillance server that eliminates the complications of browser updates, incompatible camera plug-ins, incompatible flash memory, and outdated Web technology.

The integrated GPU module and advanced deep learning algorithms perform powerful video structure analysis, achieve precision human facial analysis, and support 16 channels of real-time face recognition based on a database that stores up to 300,000 faces. In addition, IVSS offers perimeter protection on 32 channels, a feature that can distinguish between human and vehicular objects as they cross a defined tripwire or enter/exit a specific area in the scene.

IVSS offers advanced features to customize the powerful Dahua Analytics for different applications. For example, facial feature filtering displays only those faces that meet target criteria and Stranger Mode detects a face not stored in the database and triggers an alarm, takes a snapshot, or records the face for further scrutiny. The IVSS is ideal for applications that require entrance/exit management, where knowing who is coming and going is a valuable asset.

#### Functions

##### Real-time Face Recognition

The IVSS7016DR-2I performs real-time facial recognition on up to 16 channels simultaneously. In addition to the 300,000 facial images, the IVSS database also stores names, birthdays, nationality, address, and ID information associated with each facial image. IVSS offers powerful and configurable database management features that can be applied to each face recognition channel independently.

- Intel Quad-core Processor
- Maximum 512 Mbps Incoming Bandwidth
- 256 IP Channel Video Access
- Facial Database Management, Stores up to 300,000 Faces
- Analytics+ Functions – Facial Detection+ on 16 Channels or Perimeter Protection on 32 Channels or a Combination of the Two (increased analytic channels available with additional modules)
- Stranger Mode to Detect Faces not Stored in Database
- Supports RAID 0/1/5/6/10
- SAS 3.0 for Storage Extension
- Three (3) HDMI and One (1) VGA Video Outputs
- Redundant Power
- Five-year Warranty\*



##### Perimeter Protection

Dahua Analytics+ includes Tripwire and Intrusion functions that offer custom tripwires based on object type for automation in limited access areas. Perimeter Protection requires less pixels to detect an object to deliver improved accuracy and decreased false alarms due to lights, weather, trees, or animals.

##### Stranger Mode

IVSS supports two facial detection modes: Regular and Stranger. In Stranger mode, when IVSS detects a face not stored in the device's database, it can trigger an alarm, a buzzer, take a snapshot, or initiate recording. IVSS also incorporates a Similarity Threshold, where the server triggers an alarm for a face that does not match a minimum recognition level. The Stranger Mode and the Similarity Threshold are designed for critical infrastructure sites where access control is of vital importance.

##### Efficient Search

IVSS searches images by facial features to improve search efficiency. The server support uploading and storing 100,000 facial images for comparison with recorded faces. This search capability allows operators to quickly and easily search multiple channel recordings to determine when and where a person of interest appeared in a recording.

##### High Efficiency Video Coding (H.265)

The H.265 (ITU-T VCEG) video compression standard offers double the data compression ratio at the same level of video quality, or substantially improved video quality at the same bit rate, as compared to older video compression technologies. H.265 offers such impressive compression by expanding the pattern comparison and difference-coding, improving motion vector prediction and motion region merging, and incorporating an additional filtering step called sample-adaptive offset filtering.

**Technical Specification**

System

Main Processor	Embedded Micro Controller
Operating System	Embedded LINUX
Operating Interface	Web (PCAPP), Local GUI

Analytics

Perimeter Protection <sup>1</sup>	Device	32 Channels, maximum (dependant on the number of channels used for facial recognition)
	Camera	256 Channels
Human Face Detection	Device	16 Channels (at 1080p resolution)
	Camera	40 Channels
Face Recognition <sup>1</sup>	Capacity	50 Databases 300,000 Facial Images in total
	Device	<ul style="list-style-type: none"> <li>IP Camera without Facial Recognition: 16 Channels, maximum (dependant on the number of channels used for perimeter protection)</li> <li>IP Camera with Facial Recognition: 80 Channels (up to 80 facial images analyzed per second)</li> </ul>
	Camera	40 Channels
License Plate Recognition	Database	50 Plate Databases 300,000 License Plate Numbers in total Supports Allow and Block Lists
	LPR Channels	32 Channels

Video Parameters

Remote Connections	256 Channels	
Network Bandwidth	Incoming	512 Mbps
	Recording	384 Mbps
	Outgoing	128 Mbps
Supported Resolution	12 MP, 8 MP, 6 MP, 5 MP, 4 MP, 3 MP, 1080p, 960p, 720p, D1, CIF, QCIF	
Decoding Capability	6 Channels of 12 MP at 20 fps 7 Channels of 12 MP at 15 fps 6 Channels of 8 MP at 30 fps 12 Channels of 8 MP at 15 fps 7 Channels of 6 MP at 30 fps 9 Channels of 5 MP at 30 fps 11 Channels of 5 MP at 25 fps 12 Channels of 4 MP at 30 fps 18 Channels of 4 MP at 20 fps 19 Channels of 3 MP at 25 fps 24 Channels of 1080p at 60 fps 24 Channels of 1080p at 30 fps 36 Channels of 720p at 30 fps	
Video Output	VGA: One (1) Channel HDMI: Three (3) Channels Supports 4K Video Output VGA Out 1 and HDMI Out 1 send the same video stream	
Multi-screen Display	Maximum 36-channel Local Live View Maximum 16-channel PCAPP Live View Customized Display	
Third-party Support	ONVIF, RTSP, Sony, Panasonic, Axis, Arecont, Pelco, Canon, Samsung	

Network

Video Compression	Smart H.265+, H.265, Smart H.264+, H.264
Audio Compression	G.711a, G.711u, PCM, G726
Interface	Four (4) RJ45 Ports (10/100/1000 Mbps) Self-adaptive E
Network Port Mode	NIC Binding Mode, including: Multiple-address Mode, Load Balancing, Fault-tolerance
Network Protocol	HTTP, HTTPS, TCP/IP, IPv4, RTSP, UDP, SMTP, NTP, DHCP, DNS, DDNS, P2P
Interoperability	ONVIF (Profile S, T and G), CGI, SDK
Web Browser	PCAPP (other browser can only setup, no live view)
Mobile Operating System	iOS, Android

1. The DHI-IVSS7016DR-2I ships with two (2) AI Module-IVSS modules, and each module processes a maximum of eight (8) facial recognition channels or a maximum of 16 perimeter protection channels, or some combination of the two functions. For example, if no channels are used for face recognition, then 16 channels are available for perimeter protection. If one (1) channel is used for face recognition, then 14 channels are available for perimeter protection, if two (2) channels of face recognition then 14 channels of perimeter protection are available, and so on.

## Playback and Backup

<b>Multiple-Channel Playback</b>	Maximum 16-channel Playback
<b>Record Search</b>	Video Detection Search, Manual Record, I/O Alarm, Intelligent Event, All Records
<b>Storage Medium</b>	Internal HDD SAS Disk Array Enclosure
<b>Backup Method</b>	HDD Peripheral USB Storage Device
<b>Playback Function</b>	Play, Pause, Stop, Fast Forward, Fast Backward, Reverse Play, Frame by Frame Play, Full-screen, Backup (clip/file), Snapshot, Digital Zoom, Audio On/Off

## Storage

<b>Internal HDD</b>	16 SAS/SATA 3.0 HDDs Up to 10 TB capacity for each Disk
<b>HDD Mode</b>	RAID 0/1/5/6/10

## Alarms

<b>General Alarm</b>	Motion Detection, Tampering, Local Alarm
<b>Anomaly Alarm</b>	IPC offline alarm, storage error, HDD full, IP conflict, MAC conflict, login lock, AI module temperature alarm, AI module offline, fan malfunction
<b>Intelligent Alarm</b>	Human face detection, human face recognition, perimeter protection (intrusion, tripwire), plate recognition
<b>Alarm Linkage</b>	Record, snapshot (full image), local external alarm output, IPC external alarm output, access and control, audio prompt, buzzer, log, preset, email

## Auxiliary Interface

<b>Front Cover</b>	7-in. HD LCD (1920 × 1080 or 1280 × 1024), Hot-swappable	
<b>Audio</b>	<b>Input</b>	One (1) Channel (reserved)
	<b>Output</b>	One (1) Channel
<b>Alarm</b>	<b>Input</b>	16 Channels
	<b>Output</b>	Eight (8) Channels
<b>eSATA</b>	One (1) Port (reserved)	
<b>RS232</b>	One (1) Port (for debugging or transparent COM data)	
<b>USB</b>	Four (4) Ports: • Two (2) USB 2.0 Ports (front panel) • Two (2) USB 3.0 Ports (rear panel)	
<b>Video Output</b>	<b>HDMI</b>	Three (3) Channels, supports 4K output
	<b>VGA</b>	One (1) Channel
<b>Network</b>	Four (4) RJ45 Ports (10/100/1000 Mbps) Self-adaptive Ethernet Ports	

## Electrical

<b>Power Supply</b>	100 VAC to 240 VAC ±20%, 50/60 Hz
<b>Power Consumption</b>	110 W, without HDD and idling

## Environmental

<b>Operating Conditions</b>	0° C to +45° C (32° F to 113° F), 10% to 90% RH
<b>Storage Conditions</b>	0° C to +40° C (32° F to 104° F), 30% to 85% RH
<b>Operating Altitude</b>	5000.0 m (16,404.20 ft)

## Construction

<b>Dimensions</b>	<b>Chassis</b>	3U, 444.80 mm x 539.40 mm x 133.20 mm (17.51 in. x 21.24 in. x 5.20 in.)
	<b>With Mounting</b>	485.0 mm x 539.40 mm x 133.20 mm (19.09 in. x 21.24 in. x 5.20 in.)
	<b>Packaging</b>	689.0 mm x 779.0 mm x 464.0 mm (27.13 in. x 30.67 in. x 18.27 in.)
<b>Net Weight</b>	16.0 kg (35.27 lb)	
<b>Gross Weight</b>	17.0 kg (37.48 lb)	
<b>Installation</b>	Desktop or Rack-mount	

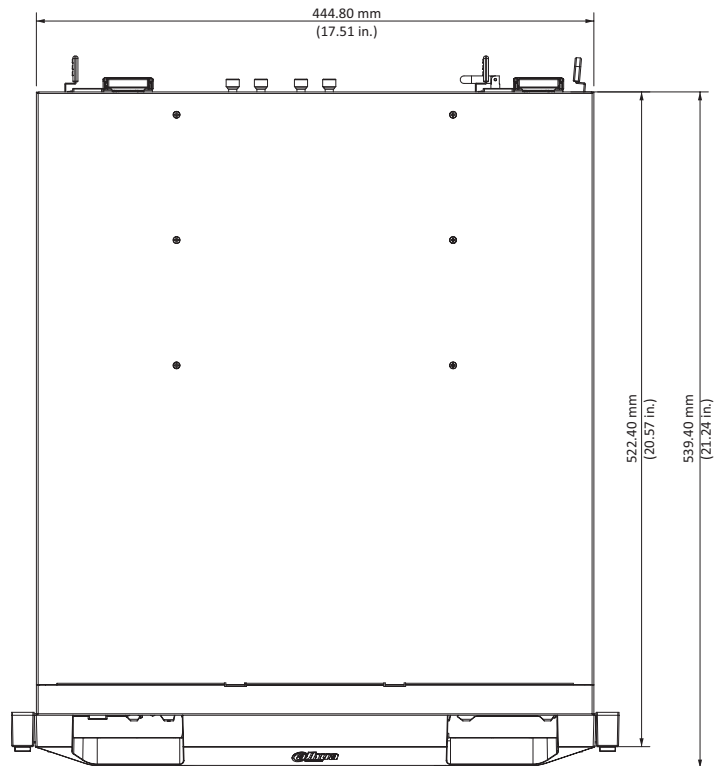
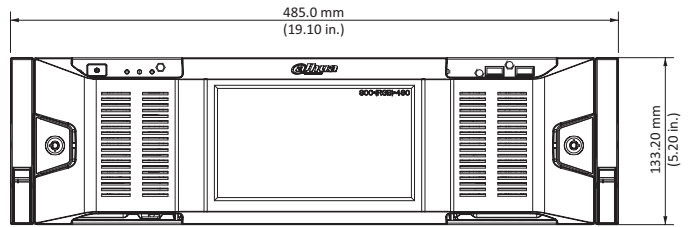
## Certifications

<b>Safety</b>	UL 60950-1 CAN/CSA C22.2 No. 60950-1-07 EN 60950-1/IEC 60950-1
<b>Electromagnetic Compatibility (EMC)</b>	CFR Part 15 FCC Subpart A EN55024, EN55035, EN50130-4, EN60950-1

## Ordering Information

Type	Part Number	Description
IVSS	DHI-IVSS7016DR-2I	3U 16 HDD Intelligent Video Surveillance Server with Redundant Power, LCD screen and 16-channel Back-end Face Recognition
Optional Module	AIModule-IVSS	Each Module (up to 6) Adds: <ul style="list-style-type: none"> <li>• 8 Channels Face Recognition, maximum (from an IP camera without analytics)</li> <li>• 16 Channels Perimeter Protection, maximum</li> <li>• 20 Pictures Analyzed per second (from an IP camera with Face Recognition capability)</li> </ul>
	Note: The AIModule-IVSS module processes a maximum of eight (8) facial recognition channels or a maximum of 16 perimeter protection channels, or some combination of the two functions. For example, if no channels are used for face recognition, then 16 channels are available for perimeter protection. If one (1) channel is used for face recognition, then 14 channels are available for perimeter protection, if two (2) channels of face recognition then 14 channels of perimeter protection are available, and so on.	

## Dimensions (mm/in.)



## Rear Panel

