# DHI-IVSS7016DR-4M

## 3U 16HDDs WizMind Intelligent Video Surveillance Server

**WizMind**

Launched by Dahua Technology, Dahua WizMind is a full portfolio of solutions composed of project-oriented products including IPC, NVR, PTZ, XVR, Thermal and software platform which adopts industry-leading deep learning algorithms. Focusing on customer's requirements, WizMind provides precise, reliable and comprehensive AI solutions for verticals.

### Series Overview

Dahua IVSS goes beyond the ordinary NVR products. It is an Intelligent Video Surveillance Server that combines video management features with traditional video storage functions in one device. Besides the basic functions as a network video recorder, IVSS is integrated with features such as face detection and face recognition for different business and industrial applications.

With the build-in deep learning module, IVSS series products adopt video image metadata technology based on deep learning algorithms, offering high-precision human face recognition and perimeter protection. By applying deep learning artificial intelligence, IVSS allows users to focus on what matters most, to improve event response time and help make video actionable.

An all new UI design supports device operation and maintenance management, improving the value and experience of surveillance view, and serving the era of security big data.

### Functions

#### Face Recognition
Supports recording faces by metadata and real-time crosscheck with incredible accuracy to figure out the face with target features. With the Regular and Stranger face mode, IVSS triggers various kinds of alarm actions for different applications.

#### AI IVS
With deep learning algorithm, AI IVS technology can recognize human and vehicle accurately. In restricted area (such as pedestrian area and vehicle area), the false alarms of intelligent detection based on target type (such as tripwire, intrusion, parking detection, loitering detection and crowd gathering estimation) are largely reduced.

- Industry embedded micro-controller
- Max 512 Mbps incoming bandwidth
- 256-channel IP video access
- Up to 48-channel AI IVS
- Up to 48-channel face recognition with normal IPC
- Up to 160-channel face recognition with face detection IPC
- Up to 48-channel video metadata
- Up to 50 face databases with 500,000 face pictures in total
- Supports RAID 0/1/5/6/10/50/60
- SAS3.0 for storage extension
- Redundant power

| | | | | | |
|---|---|---|---|---|---|
| Face Recognition | Human Capture | ANPR | Video Metadata | Image Search | Blocklist Alarm |
| People counting | False Alarm Filtering | | | | |

#### Video Metadata
Metadata is feature attribute information extracted from a target object which can be used for data retrieval. Currently, there are four main kinds of metadata in the security industry: Human face, human body, and motor vehicle and non-motor vehicle metadata.

#### AI Search
Supports search by metadata of human and vehicles. Supports uploading face pictures to IVSS and compare them with recorded faces in IVSS by similarity. IVSS enables operators to quickly and easily search through multiple channels and long duration, to efficiently find out when and where a person of interest appeared.

#### ANPR
Automatic Number Plate Recognition available for convenient entrance/exit management. This feature provides number plate recognition (working with Dahua ITC camera), number plate comparison with blocklist/allowlist, vehicle database management, and vehicle record search.

#### N+M Hot Standby
The highly reliable redundancy N+M Hot Standby design provides a secure failover technique to ensure immediate backup. In the event of a system failure, the sub device instantly takes over the main device to ensure no data loss.

#### Fisheye Dewarp
Supports multiple fisheye dewarp modes to make viewing video easy whether its live or during playback.

#### Smart Tracking
The automatic tracking PTZ feature automatically tracks a moving target throughout the camera's field of view. This function is ideal for following an object as it moves through airports, parking lots, city centers, or other scenes.

## Technical Specification

### System

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|---|---|
| Main Processor | Industry embedded micro-controller |
| Operating System | Embedded Linux OS |
| Operation Interface | WEB (PCAPP), local GUI |

### AI Applications

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|---|---|
| AI by Camera | Face detection, face recognition, video metadata, IVS (tripwire, intrusion, abandoned object, missing object, fast moving, parking detection, crowd gathering, loitering, and fence-crossing), people counting, smoking detection, call detection |
| AI by Device | Face detection, face recognition, video metadata, IVS (tripwire, intrusion, crowd gathering, loitering detection, parking detection), plate comparison |

### IVS

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|---|---|
| IVS Performance (AI by Device) (Channel Number) | 48-channel 2 MP or 32-channel 4 MP with normal IP camera |
| IVS Performance (AI by Camera) (Channel Number) | 256-channel |

### Human Face Detection

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|---|---|
| Human Face Properties | Supports 6 properties: Gender, age range (6 levels), glasses, expression (8 types), mouth mask, and beard |
| Face Detection Performance (AI by Device)(Channel Number) | 48-channel 2 MP or 32-channel 4 MP with normal IP camera |
| Face Detection Performance (AI by camera) (Channel Number) | 160-channel |

### Human Face Recognition

| | |
|---|---|
| Face Database Capacity | 50 face databases with 500,000 face pictures in total |
| Human Face Recognition Performance (AI by Device)(Channel Number) | 48-channel 2 MP or 32-channel 4 MP with normal IP camera<br>160-channel with face detection IP camera (Totally 160 face pictures analyzed per second) |
| Human Face Recognition Performance (AI by camera) (Channel Number) | 160-channel |

### ANPR

| | |
|---|---|
| Plate Database Capacity | 50 plate databases with 500,000 plate numbers in total<br>Supports allowlist and blocklist |
| Plate Detection Performance by ITC Camera (Channel Number) | 64-channel |

### Video Metadata

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|---|---|
| Human Body Properties | Gender, age, sleeves length, top color, bottom type, bottom color, bag, rain coat, umbrella, hat, hairstyle, direction, hold a baby, mouth mask |
| Vehicle Properties | Vehicle type, vehicle color, plate color, logo, calling, seatbelt, ornament, region |
| Non-motorized Vehicle Properties | Non-motor Vehicle type, non-motor vehicle color, number of passengers, umbrella, rain coat,bag , sleeve length, top color, hat, hair style, mouth mask |
| Metadata Performance (AI by Device) (Channel Number) | 48-channel 2 MP or 32-channel 4 MP with normal IP camera |
| Metadata Performance (AI by camera) (Channel Number) | 64-channel |

### Video Parameters

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|---|---|
| Remote Connection | 256-channel |
| Network Bandwidth | Incoming bandwidth: 512 Mbps<br>recording bandwidth: 384 Mbps<br>outgoing bandwidth: 128 Mbps |
| Resolution | 24MP/16MP/12MP/8MP/6MP/5MP/4MP/3MP/1080p/960p/720p/D1/CIF/QCIF |
| Decoding Capability | 2-channel 24MP/3-channel 16MP/6-channel12MP (20 fps)/7-channel12MP (15 fps)/6-channel8MP (30 fps)/12-channel8MP (15 fps)/7-channel6MP (30 fps)/9-channel5MP (30 fps)/11-channel5MP (25 fps)/12-channel4MP (30 fps)/18-channel4MP (20 fps)/19-channel3MP (25 fps)/12-channel1080p (60 fps)/24-channel1080p (30 fps)/36-channel720p (30 fps) |
| Video Output | 1-channel VGA output, 3-channel HDMI output, VGA 1/HDMI 1 outputs the same video source<br>Supports 4K output |
| Multi-screen Display | 1st Screen: Max.64-channel<br>2nd Screen: Max.16-channel<br>3rd Screen: Max.1-channel |
| Third-party Support | Onvif; RTSP; Sony; Panasonic; Axis; Arecont; Pelco; Canon; Samsung |
| Operating System | Embedded Linux OS |
| Operation Interface | WEB (PCAPP), local GUI |

### Compression

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|---|---|
| Video Compression | Smart H.265+; Smart H.264+; H.265; H.264 |
| Audio Compression | G.711a; G.711u; PCM; G.726 |

### Network

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|---|---|
| Protocol | HTTP; HTTPS; TCP/IP; IPv4; RTSP; UDP; SMTP; NTP; DHCP; DNS; DDNS; P2P; iSCSI |
| Mobile Phone | iOS, Android |
| Interoperability | ONVIF (Profile S, T and G); CGI; SDK |
| Browser | Chrome; PCAPP; IE9 or higher; Firefox |
| Network Mode | NIC binding mode such as multiple-address mode, load balance, fault-tolerance, etc |

### Record Playback

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|---|---|
| Multiple-channel Playback | Max. 16-channel playback |
| Record Search | Search video detection/manual record/IO alarm/intelligent event/all record file |
| Storage Medium | Internal HDD, SAS disk array enclosure |
| Backup Method | HDD, peripheral USB storage device |
| Playback Function | Play, pause, stop, fast forward, fast backward, reverse play, frame by frame play<br>Full-screen, backup (clip/file), snapshot, digital zoom, audio on/off |

### Storage

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|---|---|
| HDD Group | 16 |
| RAID | RAID 0/1/5/6/10/50/60 |
| Storage Pool | N/A |

### Alarm

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|---|---|
| General Alarm | Motion detect, tampering, local alarm |

| Anomaly Alarm | IPC offline alarm, storage error, HDD full, IP conflict, MAC conflict, login lock, AI module temperature alarm, AI module offline, fan malfunction |
|---|---|
| Intelligent Alarm | Human face detection, human face recognition, entries frequency, video metadata (person/vehicle/non-motor vehicle), IVS, plate recognition, people counting, smoking, call |
| Alarm Linkage | Record, snapshot (full image), local external alarm output, IPC external alarm output, access & control, audio prompt, buzzer, log, preset, email |

## Peripheral Interface

| Audio Input | 1-channel (reserved) |
|---|---|
| Audio Output | 1-channel, speaker output, audio linkage output |
| Alarm Input | 16-channel |
| Alarm Output | 8-channel |
| Internal HDD | 16 slots, SATA3.0/SAS. Max. 16T/HDD |
| eSATA | 1 port |
| SAS | 2 SAS3.0 ports |
| RS-232 | 1 port, for debug or transparent COM data |
| RS-485 | 1 port, control peripheral PTZ and so on Supports various protocols |
| USB | 4 ports 2 USB2.0 ports at the front panel and 2 USB3.0 ports at the rear panel |
| HDMI | 3 ports; support 4K output |
| VGA | 1 port |
| Network | 4 RJ-45 10/100/1000 Mbps self-adaptive Ethernet ports |
| Power | 2 ports |
| PoE | N/A |

## General Parameters

| Power Supply | AC100-127V/AC200-240V 50/60Hz |
|---|---|
| Power Consumption | 120W (without HDD, idling) 312W (all HDDs connected) |
| Net Weight | 16 kg (35.27 lb) |
| Gross Weight | 17 kg (37.48 lb) |
| Dimensions (W × L × H) | Chassis: 444.8 mm × 539.4 mm × 133.2 mm (17.51 " × 21.24 " × 5.24 ") Max. size: 485.0 mm (with hanger) × 539.4 mm × 133.2 mm (with feet mat) (19.09 " × 21.24 " × 5.24 ") |
| Packaging Dimensions (W × L × H) | 689 mm × 779 mm × 464 mm (27.13 " × 30.67 " × 18.27 ") |
| Operating Conditions | 0 °C to +45 °C (+32 °F to +113 °F)/10%RH–90% RH |
| Strorage Conditions | -20 °C to +70 °C (-4 °F to +158 °F) |
| Operating Altitude | 5000 m (16404.20 ft) |
| Installation Mode | Desktop/rack |
| Certifications | CE: CE-LVD: EN 60950-1/IEC 60950-1 CE-EMC: EN55024,EN55035, EN50130-4,EN60950-1 FCC: Part 15 Subpart A UL: 60950-1 and CAN/CSA C22.2 No. 60950-1-07 |

## Dimensions (mm[inch])