**Dahua**
TECHNOLOGY

# 4K Penta-brid HDCVI DVR
## 16-Channel 1U Digital Video Recorder with Analytics+

- 4K at 7 fps Recording Resolution on All HDCVI Channels
- Available with a 4 TB, 6 TB, 8 TB, or 10 TB Pre-installed Hard Drive
- Dual-stream Video Recording
- AI Coding Technology for High-quality Human/Vehicle Video
- Auto-detection and Auto-configuration of Video Inputs
- 16 + 16 IP Camera Channels, each channel up to 8 MP
- Maximum 128 Mbps Incoming Bandwidth
- Perimeter Protection and Smart Motion Detection (SMD)
- Long-distance Video Transmission
- Five-year Warranty*

| Perimeter Protection | SMD | AI Coding | H.265 | 4K HDMI | Coax Audio | 1200m Long Distance |
|---|---|---|---|---|---|---|

**WizSense**

WizSense Series devices combine Dahua's powerful Analytics+ with an intuitive and easy to use interface. WizSense devices offer Smart Motion Detection and Perimeter Protection functions that focus on human and vehicular images and ignore irrelevant images to capture important video while reducing false alarms. WizSense Series devices provide powerful general surveillance for small to medium size businesses at a sensible price.

### System Overview

The X82B Series HDCVI DVR offers 4K recording on each HDCVI channel and a host of advanced features and functions. The X82B takes advantage of HDCVI technology for easy integration into existing video surveillance systems while leveraging existing networks, cabling, and cameras. Penta-brid access technology seamlessly records video from HDCVI, AHD, TVI, CVBS, and IP sources simultaneously, plus the DVR delivers 4K resolution on each HDCVI or IP channel. This recorder is the ideal solution for actively monitoring public venues, retail stores, transportation hubs and access ways, personal property and homes, and educational institutions.

### Functions

**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.

**Smart Motion Detection**

The Smart Motion Detection, a component of Dahua's Analytics+ technology, improves alarm accuracy and decreases the number of false alarms. The advanced SMD algorithm analyzes a scene for human or vehicle motion, while filtering out other motion due to trees, leaves, animals, weather, and triggers an alarm when detected.

**AI Coding**

The AI Coding function puts recording emphasis on human or vehicular objects in the video scene. This technology, based on constant bit rate (CBR), dynamically allocates increased bit rate to the target object while reducing the bit rate allocated to background objects. AI Coding reduces bit rate and storage requirements by up to 50% when compared to the H.265 video compression standard.

**Smart H.265+**

Smart H.265+ is the optimized implementation of the H.265 codec that uses a scene-adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality video without straining the network. Smart H.265+ technology reduces bit rate and storage requirements by up to 90% when compared to the H.264 video compression standard.

**4K Resolution**

The HDCVI DVR records 4K resolution on each HDCVI and IP channel. 4K is a revolutionary breakthrough in image processing technology. 4K delivers four times the resolution of standard HDTV 1080p cameras and offers superior picture quality and image details. 4K resolution improves the clarity of a magnified scene to view or record crisp forensic video from large areas.

**HDCVI/AHD/TVI/CVBS Auto-detect**

The HDCVI DVR automatically recognizes the incoming signals of each attached camera without any setup, making installation easy and operation convenient.

**Long Distance Transmission**

HDCVI technology guarantees real-time transmission over long distances without loss of video quality. HDCVI devices provide the same resolution as most IP network camera systems using existing RG-59, RG-6, or CAT 6 UTP cabling.

## Technical Specification

### System

| | |
|---|---|
| Main Processor | Embedded Processor |
| Operating System | Embedded LINUX |

### Analytics+ Perimeter Protection[1]

| | |
|---|---|
| Performance | • Human and Vehicle object classification<br>• Decreased false alarms from leaves, lights, animals<br>• Configure function on two (2) channels, or configure function on one (1) channel to use eight (8) channels for SMD<br>• 10 Tripwire/Intrusion rules per channel |
| Live View | • Configure Rule and Object Inspection area<br>• Display object classification, event types, trigger time, image snapshot, and object types<br>• Export event playback 10 seconds prior to or after event |
| Playback | • Search by channel, time, event type, and target type<br>• Search event playback 10 seconds prior to or after event<br>• Snapshot capacity: 500,000 |

### Analytics+ Smart Motion Detection[1]

| | |
|---|---|
| Performance | • Detect motion based on object classification (human or vehicle)<br>• Decreased false alarms from leaves, lights, animals<br>• Configure functions on 16 channels, or configure functions on eight (8) channels to use one (1) channel of Perimeter Protection |
| Preview | • Configure and inspect detection area |
| Playback | • Search by channel, time, event type, and target type<br>• Search event playback 10 seconds prior to or after event |

### Interface

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|---|---|
| Analog Camera Input | 16 Channels, BNC |
| HDCVI | 8 MP, 6 MP, 5 MP, 4 MP, 1080p, 720p at 30 fps, 720p at 60 fps |
| AHD | 8 MP, 5 MP, 4 MP, 3 MP, 1080p at 30 fps, 720p at 30 fps |
| TVI | 8 MP, 5 MP, 4 MP, 3 MP, 1080p at 30 fps, 720p at 30 fps |
| CVBS | NTSC |
| IP Camera Input | 16+16 Channels, each channel up to 8 MP |
| Audio | Input: Four (4) Channels, RCA<br>Output: One (1) Channel, RCA |
| Two-way Talk | Audio Input Channel 1 In/ Audio Output, RCA |

### Recording

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|---|---|---|
| Compression | | AI Coding, Smart H.265+, H.265, Smart H.264+, H.264 |
| Recording Resolution | | 8 MP, 6 MP, 5 MP, 4K-N, 4 MP, 3 MP, 4M-N, 1080p, 720p, 960H, D1, CIF |
| Record Rate | Main Stream | 8 MP at 7 fps<br>6 MP at 10 fps<br>5 MP at 12 fps<br>4K-N, 4 MP, 3 MP at 15 fps<br>4M-N, 1080p, 720p, 960H, D1, CIF at 30 fps |
| | Sub Stream | 960H at 15 fps;<br>D1, CIF at 30 fps |
| Max. Incoming Bandwidth | | 128 Mbps |
| Bit Rate | | 32 Kbps to 6144 Kbps per Channel |
| Record Mode | | Manual, Schedule (Regular, Continuous),<br>MD (Video Detection: Motion Detection, Video Loss, Tampering), Alarm, Stop |
| Record Interval | | 1 to 60 minutes (default: 60 minutes),<br>Pre-record: 1 s to 30 s,<br>Post-record: 10 s to 300 s |
| Audio Compression | | AAC (first channel only), G.711a, G.711u, PCM |
| Audio Sample Rate | | 8 KHz, 16 bits per Channel |
| Audio Bit Rate | | 64 Kbps per Channel |

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1. The Analytics+ functions are disabled when the additional 17 to 32 IP channels are active. If channel 15 or 16 connect to an IP camera, the Analytics+ functions can be used on analog channels 1 to 14.

## Display

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|---|---|
| Interface | One (1) HDMI (3840 x 2160)<br>One (1) VGA (1920 x 1080) |
| Spot Output | HDMI: 1920 x 1080,1280 x 1024, 1280 x 720<br>VGA: 1920 x 1080,1280 x 1024, 1280 x 720 |

| Native Output Resolution | HDMI | 3840 x 2160, 2560 x 1440, 1920 x 1080,<br>1280 x 1024, 1280 x 720 |
|---|---|---|
| | VGA | 1920 x 1080, 1280 x 1024, 1280 x 720 |

| | |
|---|---|
| Maximum Playback Decoding | 16 Channels of 4 MP/3 MP at 7 fps<br>16 Channels of 4 M-N/1080p at 15 fps<br>16 Channels of 720p, 960H at 30 fps<br>Eight (8) Channels of 4K at 7 fps<br>Eight (8) Channels of 6 MP at 10 fps<br>Eight (8) Channels of 5 MP at 12 fps<br>Eight (8) Channels of 4 M-N, 1080p, 720p, 960H at 30 fps |
| Multi-screen Display | IP extension mode disabled: 1/4/8/9/16<br>IP extension mode enabled: 1/4/8/9/16/25/36 |
| Fisheye Dewarp | Supported via Web Interface |
| On-sceen Display | Camera Title, Time, Video Loss, Camera Lock,<br>Motion Detection, Recording |

## Network

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|---|---|
| Interface | One (1) RJ-45 (1000 Mbps) Port |
| Network Function | HTTP, TCP/IP, IPv4/IPv6, UPnP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, PPPoE,DDNS, FTP, Alarm Server, P2P, IP Search (Supports Dahua IP cameras, DVRs, NVS) |
| Maximum User Access | 128 Users |
| Mobile Operating System | IOS, Android |
| Interoperability | ONVIF 16.12, CGI Conformant |

## Video Detection and Alarm

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| Trigger Events | Recording, PTZ, Tour, Video Push, Email, FTP, Snapshot, Buzzer and Screen Tips |
| Video Detection | Motion Detection, MD Zones: 396 (22 × 18),<br>Video Loss, Tampering, and Diagnosis |
| Alarm Input | 16 Channels |
| Relay Output | Three (3) Channels |

## Playback and Backup

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|---|---|
| Playback | 1/4/9/16 |
| Search Mode | Time/Date, Alarm, MD and Exact Search (accurate to 1 second) |
| Playback Function | Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Shuffle, Backup Selection, and Digital Zoom |
| Backup Mode | USB Device/Network |

## Storage

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| Internal HDD | Two (2) SATA Ports, up to 10 TB capacity for each disk |

## Auxiliary Interface

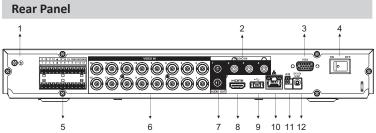| | |
|---|---|
| USB | One (1) USB 2.0 Port and One (1) USB 3.0 Port |
| RS485 | One (1) Port for PTZ Control |

## Electrical

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|---|---|
| Power Supply | 12 VDC, 5 A |
| Power Consumption | < 15 W, without HDD |

## Construction

| Dimensions | |
|---|---|
| HDCVI DVR | 1U, 375.0 mm x 278.40 mm x 53.0 mm (14.76 in. x 10.96 in. x 2.09 in.) |
| with PFH101 Rack Mount Tray | 482.6 mm x 287.15 mm x 53.0 mm (19.0 in. x 11.31 in. x 2.09 in.) |
| Net Weight | 1.90 kg (4.20 lb) |
| Gross Weight | 3.20 kg (7.0 lb) |
| Installation | Desktop or Rack-mount |

## Video Transmission Distance

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|---|---|
| RG-59/U Coax | 720p: 800 m (2624.67 ft)<br>1080p: 500 m (1640.42 ft)<br>4K/4MP: 500 m (1640.42 ft) |
| RG-6/U Coax | 720p: 1200 m (3937.01 ft)<br>1080p: 800 m (2624.67 ft)<br>4K/4MP: 700 m (2296.59 ft) |
| CAT 6 UTP (balun required) | 720p: 450 m (1476.38 ft)<br>1080p: 300 m (984.25 ft)<br>4K/4MP: 300 m (984.25 ft) |

## Environmental

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|---|---|
| Operating Conditions | −10° C to +55° C (+14° F to +131° F), 0% to 90% RH |
| Storage Conditions | −20° C to +70° C (−4°F to +158° F), 0% to 90% RH |

## Third-party Support

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|---|---|
| Third-party Support | Dahua, Arecont Vision, AXIS, Bosch, Brickcom, Canon, CP Plus, Dynacolor, Honeywell, Panasonic, Pelco, Samsung, Sanyo, Sony, Videotec, Vivotek, and others |

## Certifications

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|---|---|
| Safety | UL 60950<br>EN 60950-1<br>IEC 60950-1 |
| Electromagnetic Compatibility (EMC) | FCC CFR 47 Part 15 Subpart B<br>EN 61000-3-2<br>EN 61000-3-3<br>EN 55032<br>EN 50130<br>EN 55024 |

## Ordering Information

| Type | Part Number | Description |
|---|---|---|
| 4K HDCVI DVR with Analytics+ | X82B3A | 16-Channel Penta-brid 4K 1U, Digital Video Recorder No pre-installed HDD |
| | X82B3A4 | 16-Channel Penta-brid 4K 1U, 4 TB Digital Video Recorder |
| | X82B3A6 | 16-Channel Penta-brid 4K 1U, 6 TB Digital Video Recorder |
| | X82B3A8 | 16-Channel Penta-brid 4K 1U, 8 TB Digital Video Recorder |
| | X82B3A10 | 16-Channel Penta-brid 4K 1U, 10 TB Digital Video Recorder |
| Accessory, optional | PFH101 | Rack Mount Tray 482.60 mm x 281.20 mm x 43.7 mm (19.0 in. x 11.07 in. x 1.72 in.) |

## Dimensions



## Rear Panel



| | | | |
|---|---|---|---|
| 1 | Ground | 7 | Audio Output (x1 RCA) |
| 2 | Audio Input (x4 RCA) | 8 | HDMI Output |
| 3 | VGA Output | 9 | USB Port |
| 4 | Power Switch | 10 | RJ-45 Ethernet Port (1000 Mbps) |
| 5 | Alarm Input (x16) Alarm Output (x3) | 11 | RS485 Port |
| 6 | Video Input (x16 BNC) | 12 | Power Input |