

# 4K Penta-brid HDCVI DVR

## 16-Channel 1U Digital Video Recorder with IoT Support



### System Overview

The X72A Series HDCVI DVR offers 4K recording on each HDCVI channel and a host of advanced features and functions. The X72A 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 on each channel.

The X72A utilizes the Smart H.265+ Codec to significantly improve encoding efficiency and to reduce bandwidth and storage costs. In addition to the advanced codec, the X72A series supports Internet of Things (IoT) functionality and Point of Sale (PoS) integration. This recorder is the ideal solution for actively monitoring and recording video feeds in a wide range of applications including public venues, retail stores, transportation hubs and access ways, personal property and homes, and educational institutions.

### Functions

#### 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.

- 4K at 7 fps Recording Resolution on All HDCVI Channels
- Dual-stream Video Recording
- Smart H.265+ and H.264 Dual Codec
- Auto-detection and Auto-configuration of Video Inputs
- 16 + 16 IP Camera Channels, each channel up to 8 MP
- Maximum 128 Mbps Incoming Bandwidth
- Smart Search and Intelligent Video System
- Internet of Things (IoT) and Point of Sale (POS) Support
- Spot Output
- Five-year Warranty\*



#### Internet of Things (IoT) Support

The HDCVI DVR integrates with HDCVI IoT devices to support multi-dimensional surveillance. This device records sensor data as well as the video from HDCVI IoT devices and can generate a detailed report based on the data.

#### Spot Output

The HDCVI DVR provides a spot output channel for a secondary monitor. This monitor allows the operator to view one monitor that is assigned to selected cameras or video inputs from high-security areas.

#### Point of Sale (POS)

Ideal for grocery and retail stores, the optional POS solution allows the HDCVI DVR to receive a POS transaction via corresponding video. This feature allows merchants to analyze specific transactions via the Fuzzy Search Algorithm.

#### Smart Fan Design

The HDCVI DVR automatically turns on or turns off the fan according to the CPU temperature. This function reduces fan noise and helps to conserve electricity.

#### Intelligent Video System (IVS)

IVS is a built-in video analytic algorithm that delivers standard intelligent functions to monitor a scene for Tripwire violations, intrusion detection, and abandoned or missing objects. IVS quickly and accurately responds to monitoring events in a specific area.

#### Face Detection

This technology identifies human faces in digital images and then searches a database to identify the individual in the image.

#### Smart Search

Smart Search allows an operator to specify a region in the playback video to search for a motion detection event, saving time and manpower.

## Technical Specification

### System

Main Processor	Embedded Processor
Operating System	Embedded LINUX

### Interface

Analog Camera Input	16 Channels, BNC
HDCVI	8 MP, 5 MP, 6 MP, 4 MP, 1080p at 30 fps, 720p at 60 fps, 720p at 30 fps
AHD	5 MP, 4 MP, 3 MP, 1080p at 30 fps, 720p at 30 fps
TVI	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 Output: One (1) Channel, RCA
Two-way Talk	Reuse Audio In/Out, RCA

### Recording

Compression	Smart H.265+, H.265, Smart H.264+, H.264	
Recording Resolution	8 MP, 6 MP, 5 MP, 4 MP, 3 MP, 4 M-N (1280 x 1440), 1080p, 720p, 960H, D1, CIF	
Record Rate	Main Stream	8 MP at 7 fps; 6 MP at 10 fps, 5 MP at 12 fps, 4 MP or 3 MP at 15 fps; 4 M-N, 1080p, 720p, 960H, D1, CIF or QCIF at 30 fps
	Sub Stream	960H at 15 fps; D1 or CIF at 30 fps
Maximum Incoming Bandwidth	128 Mbps	
Bit Rate	32 Kbps to 6144 Kbps per Channel	
Record Mode	Manual, Schedule (Regular, Continuous), MD (Video Detection: Motion Detection, Video Loss, Tampering), Alarm, Stop	
Record Interval	1 to 60 minutes (default: 60 minutes), Pre-record: 1 to 30 s, Post-record: 10 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	

### Display

Interface	One (1) HDMI (3840 x 2160) One (1) VGA (1920 x 1080)	
Spot Output	HDMI or VGA, configurable	
Native Output Resolution	HDMI	3840 x 2160, 2560 x 1440, 1920 x 1080, 1280 x 1024, 1280 x 720, 1024 x 768
	VGA	1920 x 1080, 1280 x 1024, 1280 x 720
Maximum Decoding	Eight (8) Channels of 4K at 7 fps Eight (8) Channels of 6 MP at 10 fps Eight (8) Channels of 5 MP at 12 fps 16 Channels of 4 MP/3 MP at 7 fps 16 Channels of 4 M-N/1080p at 15 fps 16 Channels of 720p, 960H at 30 fps	
Multi-screen Display	IP extension mode disabled: 1/4/8/9/16 IP extension mode enabled: 1/4/8/9/16/25	
On-screen Display	Camera Title, Time, Video Loss, Camera Lock, Motion Detection, Recording	
Fisheye Dewarping	Dewarping modes available via Web Interface or SmartPSS	

### Network

Interface	One (1) RJ45 (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)
Max. User Access	128 Users
Mobile Operating System	IOS, Android
Interoperability	ONVIF 16.12, CGI Conformant

### Video Detection and Alarm

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

### Playback and Backup

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

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

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

### Electrical

Power Supply	12 VDC, 5 A
Power Consumption	< 20 W, without HDD

### Construction

Dimensions	
HDCVI DVR	1U, 375.0 mm x 287.15 mm x 53.0 mm (14.80 in. x 11.31 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	1.80 kg (3.97 lb)
Gross Weight	3.2 kg (7.05 lb)
Installation	Desktop or Rack-mount

### Environmental

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

Third-party Support

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

Safety	UL 60950-1 EN 60950-1 IEC 60950-1
Electromagnetic Compatibility (EMC)	FCC Part 15 Subpart B EN 61000-3-2 EN 61000-3-3 EN 55032 EN 50130 EN 55024

Intelligence

The IVS features are operational only when the additional IP channel feature is not active. The HDCVI DVR supports only IVS or the additional IP channel inputs, both features cannot be in use simultaneously. IVS triggers an alarm and takes a defined action for the following events:

Premium Features	
Tripwire	A target crosses a user-defined line.
Intrusion	A target enters or exits a defined perimeter.
Abandoned/Missing Object	A target leaves an object in designated area, or a target removes an object from the same designated area.

IVS Feature Availability

The HDCVI DVR supports the following IVS availability:

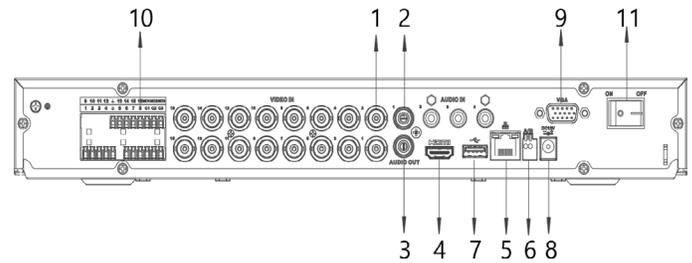
- 16 Analog Channels of Tripwire/Intrusion
- First Four (4) Analog Channels of Abandoned/Missing Object

Ordering Information

Type	Part Number	Description
16-Channel HDCVI DVR	X72A3A	16-Channel Penta-brid 4K 1U Digital Video Recorder
	X72A3A2	16-Channel Penta-brid 4K 1U, 2 TB Digital Video Recorder
	X72A3A4	16-Channel Penta-brid 4K 1U, 4 TB Digital Video Recorder
	X72A3A6	16-Channel Penta-brid 4K 1U, 6 TB Digital Video Recorder
Accessory, optional	DH-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.)

Rear Panel

X72A3A



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|---|--------------------|----|-----------------|
| 1 | Video IN, BNC x 16 | 7  | USB Port        |
| 2 | Audio IN, RCA      | 8  | 12 VDC Power IN |
| 3 | Audio OUT, RCA     | 9  | VGA OUT         |
| 4 | HDMI OUT           | 10 | Alarm IN/OUT    |
| 5 | Network Port       | 11 | Power Switch    |
| 6 | RS485 Port         |    |                 |

Dimensions

