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

- 4K at 7 fps Recording Resolution on All HDCVI Channels
- Dual-stream Video Recording
- Smart H.265+ and Smart 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
- Perimeter Protection and Smart Motion Detection Plus (SMD+)
- Internet of Things (IoT) and Point of Sale (POS) Support
- Spot Output (HDMI or VGA Output)
- Five-year Warranty*

System Overview

The X82A Series HDCVI DVR offers 4K recording on each HDCVI channel and a host of advanced features and functions. The X82A 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.

The Dahua Analytics+ algorithms significantly improve accuracy and reliability, as compared to standard intelligent features. The recorder offers advanced perimeter protection that distinguishes between human and vehicular violations, and SMD+ that improves alarm accuracy by analyzing a scene for humans or vehicles and filtering out motion caused by leaves, lights, animals, and weather. 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 Plus
The Smart Motion Detection Plus, 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.

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.

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.

Technical Specification

System

Main Processor	Embedded Processor
Operating System	Embedded LINUX

Analytics+ Perimeter Protection[1,2]

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

Analytics+ Smart Motion Detection Plus[1,2]

Performance	• Detect motion based on object classification (human or vehicle) • Decreased false alarms from leaves, lights, animals • Configure functions on 16 channels
Preview	• Configure and inspect detection area
Playback	• Search by channel, time, event type, and target type • Search event playback 10 seconds prior to or after event

Interface

Analog Camera Input		16 Channels, BNC
	HDCVI	8 MP, 6 MP, 5 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		Audio Input Channel 1 In/ Audio Output, 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, 1080p, 720p, 960H, D1, CIF, QCIF
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, CIF, or QCIF 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		
Native Output Resolution	HDMI	3840 x 2160, 2560 x 1440, 1920 x 1080, 1280 x 1024, 1280 x 720
	VGA	1920 x 1080, 1280 x 1024, 1280 x 720
Maximum Playback 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

Network

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)
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 × 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

Auxiliary Interface

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

1. The Analytics+ functions are disabled when the additional IP channels are active.
2. The DVR is capable of processing two (2) channels of Perimeter Protection, one (1) channel of Perimeter Protection and eight (8) channels of SMD+, or 16 channels of SMD+ at one time.

Electrical

Power Supply	12 VDC, 5 A
Power Consumption	< 15 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	3.20 kg (7.05 lb)
Installation	Desktop or Rack-mount

Video Transmission Distance

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

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

Certifications

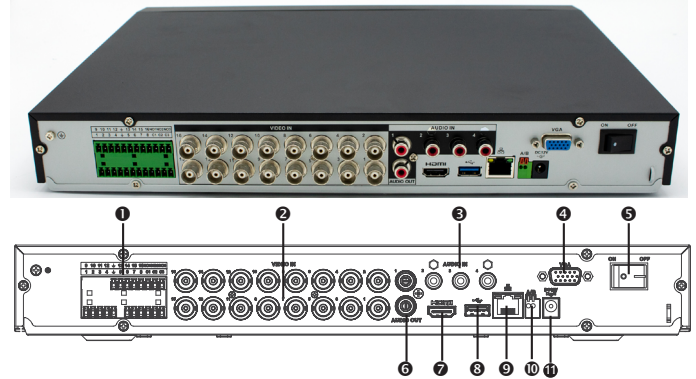|	
Safety	UL 60950 EN 60950-1 IEC 60950-1
Electromagnetic Compatibility (EMC)	FCC CFR 47 Part 15 Subpart B EN 61000-3-2 EN 61000-3-3 EN 55032 EN 50130 EN 55024

Ordering Information

Type	Part Number	Description
	X82A3A2	16-Channel Penta-brid 4K 1U, 2 TB Digital Video Recorder
	X82A3A4	16-Channel Penta-brid 4K 1U, 4 TB Digital Video Recorder
	X82A3A6	16-Channel Penta-brid 4K 1U, 6 TB Digital Video Recorder
	X82A3A8	16-Channel Penta-brid 4K 1U, 8 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

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

Dimensions

375.0 mm (14.76 in.)

53.0 mm (2.09 in.)

276.0 mm (10.87 in.)

287.15 mm (11.31 in.)