

# DH-HAC-T1A21

## 2MP HDCVI IR Eyeball Camera



- Max. 30 fps@1080p
- CVI/CVBS/AHD/TVI switchable
- 3.6 mm fixed lens (2.8 mm, 6 mm optional)
- Max. IR length 20 m, Smart IR
- 12 VDC



### System Overview

The Cooper Series offers simple and highly cost-effective HDCVI solutions. It provides 24/7 reliable monitoring with high-quality image performance, saving cost on both material and labor force. It is also designed and built to the specific standards of Dahua.

### Functions

#### Smart IR Illumination

With its IR illumination, the camera provides optimal performance in low light conditions, ensuring uniformity in the brightness of B/W images. Through its smart IR technology, the camera also compensates for the distance of targets by adjusting the intensity of its IR LEDs, preventing overexposure of images as targets move closer to the camera.

#### 4 Signals over 1 Coaxial Cable

HDCVI technology supports 4 signals (video, audio\*, data and power) which are simultaneously transmitted over a coaxial cable. Dual-way data transmission allows the HDCVI camera to interact with the XVR to perform various actions such as sending control signals and triggering alarms. HDCVI technology also supports PoC, which makes the camera easy and quick to install.

\* Audio input is available for select HDCVI camera models.

#### Long Distance Transmission

HDCVI technology provides long distance transmission in real-time without transmission loss. It supports transmission distances up to 700 m for 2-MP/5-MP/8-MP HD videos through coaxial cables, and up to 300 m through UTP cables. The results were obtained and verified through rigorous testing in Dahua's test laboratory.

### Multi-language OSD

The OSD offers multiple functions to meet the many requirements of a monitoring scene, such as backlight mode, day/night mode, white balance, privacy mask, and motion detection. 11 languages are available for OSD: Chinese, English, French, German, Spanish, Portuguese, Italian, Japanese, Korean, Russian and Polish.

### Simplicity

HDCVI technology inherits the simplicity of traditional analog surveillance systems, making it a great mechanism for protecting your valuables. HDCVI can be upgraded from the traditional analog system without replacing the existing coaxial cabling. Its plug and play design enables it to produce high-definition videos during surveillance without the hassle of configuring a network.

### Technical Specification

#### Camera

Pixel	2 MP
Image Sensor	2MP CMOS
Max. Resolution	1920 (H) × 1080 (V)
Scanning System	Progressive
Electronic Shutter Speed	PAL: 1/25 s–1/100,000 s NTSC: 1/30 s–1/100,000 s
Min. Illumination	0.04 lux@F2.0 (Color, 30 IRE) 0.004 lux@F2.0 (B/W, 30 IRE) 0 lux (Illuminator on)
S/N Ratio	>65 dB
Illumination Distance	20 m (65.62 ft)
Illuminator On/Off Control	Auto/Manual
Illuminator Number	1 (IR light)
Pan/Tilt/Rotation Range	Pan: 0°–360° Tilt: 0°–78° Rotation: 0°–360°

#### Lens

Lens Type	Fixed-focal				
Lens Mount	M12				
Focal Length	2.8 mm; 3.6 mm; 6 mm				
Max. Aperture	F2.0				
Field of View	2.8 mm: H: 100°; V: 53°; D: 120° 3.6 mm: H: 82°; V: 42°; D: 98° 6 mm: H: 53°; V: 30°; D: 60°				
Iris Control	Fixed				
Close Focus Distance	2.8 mm: 0.6 m (1.97 ft) 3.6 mm: 1.0 m (3.28 ft) 6 mm: 2.0 m (6.56 ft)				
DORI Distance	Lens	Detect	Observe	Recognize	Identify
	2.8 mm	46.9 m (153.87 ft)	18.8 m (61.68 ft)	9.4 m (30.84 ft)	4.7 m (15.42 ft)
	3.6 mm	60.9 m (199.80 ft)	24.3 m (79.72 ft)	12.2 m (40.03 ft)	6.1 m (20.01 ft)
	6 mm	82.8 m (271.65 ft)	33.1 m (108.60 ft)	16.6 m (54.46 ft)	8.3 m (27.23 ft)

#### Video

Video Frame Rate	CVI: PAL: 1080p@25 fps; 720p@25 fps NTSC: 1080p@30 fps; 720p@30 fps TVI: PAL: 1080p@25 fps; 720p@25 fps NTSC: 1080p@30 fps; 720p@30 fps AHD: PAL: 1080p@25 fps; 720p@25 fps NTSC: 1080p@30 fps; 720p@30 fps CVBS: PAL: 960H NTSC: 960H
Resolution	1080p (1920 × 1080); 720p (1280 × 720); 960H (960 × 576/960 × 480)
Day/Night	Auto(ICR)/Color/B/W
BLC	BLC; HLC; DWDR

WDR	DWDR
White Balance	Auto; Area white balance
Gain Control	Auto/Manual
Noise Reduction	2D NR
Smart Illumination	Yes
Mirror	Yes
Privacy Masking	Off/On (8 areas, rectangle)

#### Certification

Certifications	CE (EN55032:2015, EN61000-3-2:2014, EN61000-3-3:2013, EN55024:2010+A1:2015, EN55035:2017, EN50130-4:2011+A1:2014, EN62368-1:2014+A11:2017) FCC (CFR 47 FCC Part 15 subpartB, ANSI C63.4-2014)
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#### Port

Video Output	Video output choices of CVI/TVI/AHD/CVBS by one BNC port
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#### Power

Power Supply	12 VDC ± 30%
Power Consumption	Max. 2.3 W (12 VDC, IR on)

#### Environment

Operating Temperature	–40 °C to +60 °C (–40 °F to 140 °F)
Operating Humidity	<95% (RH), non-condensing
Storage Temperature	–40 °C to +60 °C (–40 °F to +140 °F)

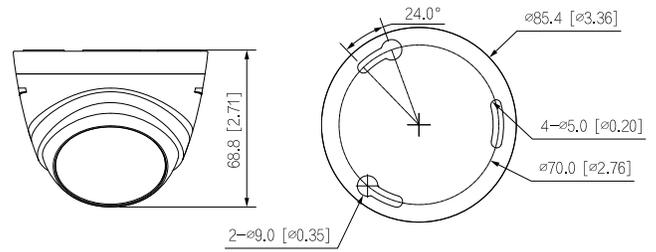
#### Structure

Casing	Plastic
Product Dimensions	Φ85.4 mm × 68.8 mm (Φ3.36" × 2.71")
Packaging Dimensions	109 mm × 109 mm × 85 mm (4.29" × 4.29" × 3.35")
Net Weight	0.09 kg (0.20 lb)
Gross Weight	0.13 kg (0.29 lb)
Installation	Wall mount; ceiling mount; horizontal pole mount

**Ordering Information**

Type	Part Number	Description
2MP Camera	DH-HAC-T1A21P	2MP HDCVI IR Eyeball Camera, PAL
	DH-HAC-T1A21N	2MP HDCVI IR Eyeball Camera, NTSC
Accessories (Optional)	PFA135	Junction Box
	PFA135+PFA152-E	Pole Mount Bracket
	PFB205W	Wall Mount Bracket
	PFA106+PFB220C	Ceiling Mount Bracket
	PFM800-E	Passive HDCVI Balun
	PFM321D	12V 1A Power Adapter
	PFM904	Integrated Mount Tester

**Dimensions (mm[inch])**



**Accessories**

Optional:



PFA135  
Junction  
Box



PFA135+PFA152-E  
Pole Mount  
Bracket



PFB205W  
Wall Mount  
Bracket



PFA106+PFB220C  
Ceiling Mount  
Bracket



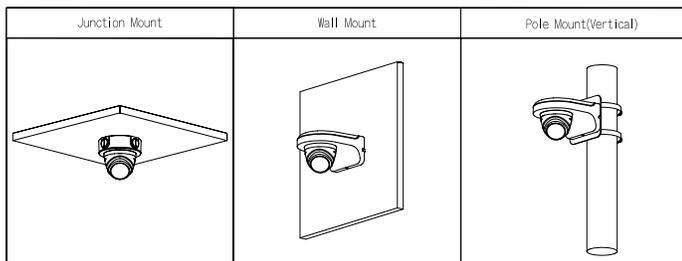
PFM800-E  
Passive HDCVI  
Balun



PFM321D  
12V 1A Power  
Adapter



PFM904  
Integrated Mount  
Tester



# DH-XVR1B04-I

4 Channels Penta-brid 1080N/720p Cooper 1U 1HDD WizSense Recorder



Wiz Sense

Launched by Dahua Technology, WizSense is a series of AI products and solutions that adopt independent AI chip and deep learning algorithm. It focuses on human and vehicle with high accuracy, enabling users to fast act on defined targets. Based on Dahua's advanced technologies, WizSense provides intelligent, simple and inclusive products and solutions.

## Series Overview

Dahua Technology, a world-leading video-centric smart IoT solution and service provider, debuted its new XVR series, Cooper-I Series featuring max.full-channel SMD Plus to benefit customers from AI upgrade (The number of channels differs depending on the model. Please refer to the specifications below for information on the number of channels.). This series has been developed to reduce false-alarm rates and the cost of human surveillance, thus bringing great value to customers in search of products with accurate human/vehicle alarm to raise the security level of various indoor and outdoor facilities.

## Functions

### SMD Plus

With intelligent algorithm, Dahua Smart Motion Detection technology can categorize the targets that trigger motion detection and filter the motion detection alarm triggered by non-concerned targets to realize effective and accurate alarm.

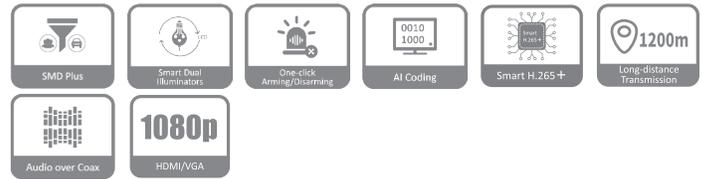
### Smart Dual Illuminators

With Smart Dual Illuminators technology, you can select Smart Illumination Mode for the system to automatically switch between IR mode and white light mode. It allows white light to be turned on when a target is detected by the SMD Plus/Perimeter Protection function of AI-enabled XVR. This significantly reduces light pollution at night. Together with other modes, including IR Mode and White Light Mode, the smart dual illumination technology can meet the requirements of a wide variety of scenes.

### One-click Arming/Disarming

With just one click, you can enable or disable alarm linkages to show messages, send emails, output audio alarms and more, through the mobile app and platform.

- H.265+/H.265 dual-stream video compression.
- Supports Full channel AI-Coding.
- Supports HDCVI/AHD/TVI/CVBS/IP video inputs.
- Max 5 channels IP camera inputs, each channel up to 2MP; Max 20 Mbps incoming bandwidth.
- Long transmission distance over coax cable.
- Up to 4 channels video stream (analog channel) SMD Plus.



## AI Coding

Compared with H.265/H.264, AI coding can reduce more than 50% bit rate and storage requirements without loss of decoding compatibility, providing clear human and vehicle details.

## Smart H.265+

Smart H.265+ Codec reduces bit rate and storage requirements by up to 90%, outranking standard H.264 video compression and eliminating the need to invest in a new camera.

## Long-distance Transmission

The HDCVI system supports long distance transmission over coaxial cable and UTP, max. 700 m for 4K/4MP, 800 m for 1080P and 1200 m for 720p.

## Audio over Coax

The integrated design can reduce wiring troubles which makes it much more cost-effective and convenient for installation.

## Technical Specification

### System

Main Processor	Industrial-grade processor
Operating System	Embedded Linux
Operating Interface	Web; Local GUI

### SMD Plus

SMD Plus by Recorder	4-channel: Secondary filtering for human and motor vehicle , reducing false alarms caused by leaves, rain and lighting condition change
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### Audio and Video

Analog Camera Input	4 channels, BNC: adaptive access by default; HDCVI, AHD, TVI and CVBS access can be configured
Camera Input	1. CVI: 1080p@25/30 fps; 720p@25/30/50/60 fps. 2. TVI: 1080p@25/30 fps; 720p@25/30 fps. 3. AHD: 1080p@25/30fps, 720p@25/30 fps.
IP Camera Input	Up to 5 channels of IPC access. 1 IP channel by default + 4 channels (analog channels are converted to IP channels) incoming bandwidth: 20 Mbps, recording bandwidth: 20 Mbps and outgoing bandwidth: 20 Mbps *After IP channels are added beyond the existing channels, the AI Function (SMD) will be disabled.
Encoding Capacity	Main stream: All channel 1080N@ (1–25/30 fps);720p@ (1–25/30 fps); 960H@ (1–25/30 fps); D1@ (1–25/30 fps); CIF@ (1–25/30 fps) Sub stream: CIF@ (1–15 fps)
Dual-stream	Yes
Video Frame Rate	PAL: 1 fps/s–25 fps/s NTSC: 1 fps/s–30 fps/s
Video Bit Rate	32 kbps–4096 kbps
Audio Sampling	8 kHz, 16 bit
Audio Bit Rate	64 kbps
Video Output	1 HDMI, 1 VGA HDMI/VGA: 1920 × 1080, 1280 × 1024, 1280 × 720
Multi-screen Display	When IP extension mode not enabled: 1/4 When IP extension mode enabled: 1/4/6
Third-party Camera Access	ONVIF; RTSP; Panasonic; Sony; Axis; Arecont; Pelco; Canon; Samsung

### Compression Standard

Video Compression	AI Coding; H.265+; H.265; H.264+; H.264
Audio Compression	G.711a; G.711u; PCM

### Network

Network Protocol	HTTP; HTTPS; TCP/IP; IPv4; RTSP; UDP; SMTP; NTP; DHCP; DNS; DDNS; P2P
Mobile Phone Access	iOS; Android
Interoperability	ONVIF 20.16, CGI Conformant
Browser	Chrome IE 9 or later Firefox
Network Mode	Single-address mode

### Recording Playback

Record Mode	General, motion detection, alarm
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Recording Playback	1/4
Backup Method	USB device and network
Playback Mode	Instant playback, general playback, event playback, tag playback, smart playback (motion detection)

### Alarm

General Alarm	Motion detection; video loss; tampering; local alarm
Anomaly Alarm	No disk, disk error, low space, offline, ip conflict, MAC conflict
Intelligent Alarm	SMD Plus
Alarm Linkage	Record, snapshot (panoramic), voice prompt, buzzer, log, preset, email

### Ports

Audio Input	1-channel RCA 4-channel BNC (Coaxial Audio)
Audio Output	1-channel RCA
Two-way Talk	Yes (share the same audio input with the first channel)
HDD Interface	1 SATA port, up to 6 TB.The maximum HDD capacity varies with environment temperature.
USB	2 (2 rear USB 2.0 ports)
HDMI	1
VGA	1
Network Port	1 (10/100 Mbps Ethernet port, RJ-45)

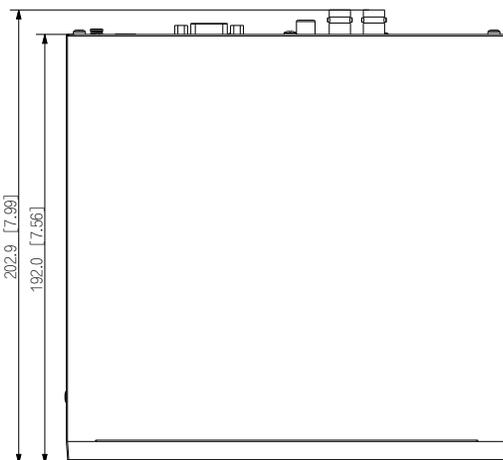
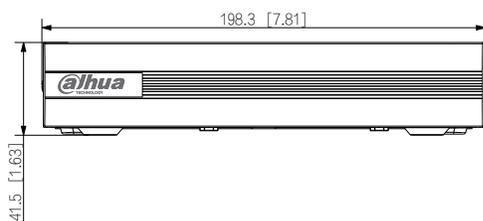
### General

Power Supply	12 VDC, 1.5 A
Power Consumption	<7 W (without HDD)
Net Weight	0.57 kg (1.25 lb)
Gross Weight	1.08 kg (2.38 lb)
Product Dimensions	198.3 mm × 202.9 mm × 41.5 mm (7.81" × 7.99" × 1.63") (W × D × H)
Packaging Dimensions	330.0 mm × 256.0 mm × 101.0 mm (13.00" × 10.10" × 4.00") (W × D × H)
Operating Temperature	–10 °C to +45 °C (+14 °F to +113 °F)
Operating Humidity	0%–90% (RH)
Installation	Desktop
Certifications	CE: CE-LVD: EN 60950-1/IEC 60950-1 CE-EMC: EN 61000-3-2, EN 61000-3-3, EN 55032, EN 50130, EN 55024 FCC: Part 15 Subpart B

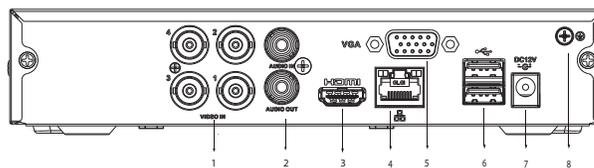
## Ordering Information

Type	Model	Description
4 Channels WizSense XVR	DH-XVR1B04-I	Cooper 1U WizSense Digital Video Recorder

**Dimensions (mm[inch])**



**Panels**



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|---------------|-------------------------------|
| 1 VIDEO IN    | 2 AUDIO IN/OUT, RCA Connector |
| 3 HDMI Port   | 4 Network Port                |
| 5 VGA Port    | 6 USB Ports                   |
| 7 Power Input | 8 Ground                      |

