

# WVR028X-U-T

16CH 5MP Compact 1U 1HDD Digital Video Recorder



Launched by WATASHI 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 WATASHI's advanced technologies, WizSense provides intelligent, simple and inclusive products and solutions.

## Series Overview

The WVR028X-U-T Series works seamlessly with 5 MP cameras, delivering smooth and sharp 5 MP videos at 12 fps. It supports HDMI 4K output, providing professional-grade images with exceptional detail. Additionally, this series features a two-way talk function that is supported by all the channels and operates over coaxial cable. It also offers various AI functions, such as AcuPick, and video analysis technology to extract valuable information from massive video data. Overall, the WVR028X-U-T series offers optimal performance at an excellent value.

## Function

### AcuPick

This industry-leading search technology effectively utilizes back-end intelligence to help with searching through massive video data to quickly and conveniently locate targets with greater precision. \*AcuPick takes effect when AcuPick is selected in AI Mode.

### Two-way talk

Allows for seamless communication between the camera, client and recorder over coaxial cable, and offers instant voice intercom and timely audio alerts.

### 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. \*SMD Plus takes effect when SMD is selected in AI Mode.

- 16-channel two-way talk over coaxial cable allows for seamless communication between the camera, client and recorder.
- 8-channel AcuPick for analog channels which improves the efficiency of target retrieval.
- 8-channel perimeter protection for analog channels which supports tripwire and intrusion detection powered by AI.
- 4-channel face recognition for analog channels which supports face comparison.
- 16-channel SMD Plus for analog channels or 24-channel SMD by camera which allows the device to trigger accurate alarms for humans and vehicles.
- 16-channel AI Coding saves on storage and bandwidth while maintaining the details of targets in videos.
- Supports HDCVI, AHD, TVI, CVBS and IP video input.
- Supports up to 24-channel IP camera input and each channel can be up to 6 MP. The incoming bandwidth reaches 128 Mbps.
- Supports accessing Wi-Fi cameras, making it suitable for a wide range of scenes.
- Smart H.265+ and H.265 dual-stream video compression.



### Face Recognition

Dahua Face Recognition technology extracts the features of captured faces and compares them with that in face database. \*Face Recognition takes effect when Face is selected in AI Mode.

### Perimeter Protection

Embedded with deep-learning algorithms, the NVR offers advanced AI capabilities, delivering precise detection, efficient analytics, and reduced false alarms.

### Enhanced Encoding

Encoding Enhancement mode optimizes videos through real-time encoding to make them smoother and improve scene rendering.



### Technical Specification

#### System

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

#### AcuPick

AcuPick Performance of AI by Recorder (1080P) (Number of Channels)	8 channels
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#### Perimeter Protection

Perimeter Performance AI by Recorder (Number of Channels)	8 channels, 10 IVS rules for each channel
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#### Face Detection

Face Attributes	6 attributes
Face Detection Performance of AI by Recorder (Number of Channels)	4 channels (up to 12 face images/s each channel)

#### Face Recognition

Face Database Capacity	Up to 10 face databases with 10,000 images.
Face Recognition Performance of AI by Recorder (Number of Channels)	4 channels

#### SMD

SMD Plus by Recorder	16 channels: Secondary filtering for human and vehicle, reducing false alarms caused by leaves, rain and lighting condition change
SMD by Camera	24 channels

#### AI Video Quality Analytics

AI Video Quality Analytics by Recorder	16 channels: Supports detecting brightness levels, color cast, defocus, overexposure, contrast levels, black and white.
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#### Scene Changing

Scene Changing by Recorder	1 channel
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#### Irregular Black Block Masking

Irregular Black Block Masking by Recorder	1 channel
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#### Audio and Video

Analog Camera Input	16 BNC ports, supports HDCVI/AHD/TVI/CVBS auto-detect
Camera Input	1. CVI: 5 MP@25 fps; 5 MP@20 fps; 5 MP@10/12.5 fps; 4 MP@25/30 fps; 1080p@25/30 fps; 720p@50/60 fps; 720p@25/30fps. 2. TVI: 5 MP(2560 × 1944)@20 fps; 5 MP(2960 × 1665)@20/25 fps; 4 MP@25/30 fps; 1080p@25/30 fps; 720p@25/30 fps. 3. AHD: 5 MP@20 fps; 4 MP@25/30 fps; 1080p@25/30 fps; 720p@25/30 fps.

IP Camera Input	Up to 24 channels of IPC access 8 IP channels by default + 16 channels (analog channels are converted to IP channels) Incoming bandwidth: 128 Mbps, recording bandwidth: 128 Mbps and outgoing bandwidth: 128 Mbps *After IP extension is enabled, Video Quality Analytics, Scene Changing, Face Recognition, Face Detection, Perimeter Protection and AcuPick cannot be used.
Encoding Capacity	Encode Enhancement disabled : Main stream: Channels 1-4 5M-N@(1 fps-25 fps), others 5M-N@(1 fps-12 fps); Channels 1-4 4M-N/1080p@(1 fps-25/30 fps), others 4M-N/1080p@(1 fps-15 fps); 1080N/720p/960H/D1/CIF@(1 fps-25/30 fps); Sub stream: D1/CIF@(1 fps-15 fps); Encode Enhancement enabled : Main stream: 8-ch 5 MP@(1 fps-12 fps)/ 5M-N@(1 fps-25 fps), others 5M-N@(1 fps-12 fps); 8-ch 4M-N/1080p@(1 fps-25 fps), others 4M-N/1080p@(1 fps-15 fps); 1080N/720p/960H/D1/CIF@(1 fps-25/30 fps) Sub stream: D1/CIF@(1 fps-15 fps); It changes to D1/CIF@(1 fps-12 fps) when Main stream is 5 MP/5M-N. *When Encode Enhancement is enabled, Video Quality Analytics, Scene Changing, Face Recognition, Face Detection, Perimeter Protection and AcuPick cannot be used.
Dual-stream	Yes
Video Bit Rate	32 kbps-6144 kbps
Audio Sampling	8 kHz, 16 bit
Audio Bit Rate	64 kbps
Video Output	1 HDMI, 1 VGA HDMI: 3840 × 2160, 2560 × 1440, 1920 × 1080, 1280 × 1024, 1280 × 720 VGA: 1920 × 1080, 1280 × 1024, 1280 × 720
Multi-screen Display	When IP extension mode not enabled: 1/4/8/9/16 When IP extension mode enabled: 1/4/8/9/16/25
Third-party Camera Access	Panasonic; Sony; Hanwha; Axis; Arecont; ONVIF

#### Compression Standard

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

#### Network

Network Protocol	HTTP; HTTPS; TCP/IP; IPv4; IPv6; RTSP; UDP; NTP; DHCP; DNS; SMTP; UPnP; IP Filter; FTP; DDNS; SNMP; Alarm Server; P2P; Auto Registration; IP Search (Supports IP camera, DVR, NVS, etc.)
Mobile Phone Access	iOS; Android
Interoperability	ONVIF 24.12 (Profile T; Profile S; Profile G); CGI; SDK
Browser	Chrome; IE; Safari; Edge; Firefox

#### Recording Playback

Record Mode	General; alarm; motion detection; intelligent
Recording Playback	1/4/9/16
Backup Method	USB device and network



## Technical Specification

Playback Mode	Instant playback; general playback; event playback; tag playback; smart playback
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### Alarm

General Alarm	Motion detection; alarm box; HDCVI alarm; camera external alarm; network alarm; PIR alarm
Anomaly Alarm	Error (no disk; disk error; low space; low quota space; network disconnection; IP conflict; MAC conflict); video loss; video tampering; camera offline
Intelligent Alarm	Face detection; face recognition; perimeter protection; SMD Plus
Alarm Linkage	Record; snapshot (panoramic); IPC external alarm output; audio; buzzer; log; preset; email

### Ports

Audio Input	1-channel RCA 16-channel BNC (Coaxial Audio)
Audio Output	1-channel RCA
Two-way Talk	Coaxial two-way talk: 16-channel BNC Local and network user two-way talk: Shares the same audio input with the first channel
Disk Interface	1 SATA port, up to 16 TB. This limit varies depending on the environment temperature.
RS-485	1
USB	2 (1 front USB 2.0 port, 1 rear USB 3.0 port)
HDMI	1
VGA	1
Network Port	1 (10/100/1000 Mbps Ethernet port, RJ-45)

### General

Power Supply	12 VDC, 2 A
Power Consumption	<12 W (without HDD)
Net Weight	1.00 kg (2.20 lb)
Gross Weight	1.58kg (3.48 lb)
Product Dimensions	260.0 mm × 237.8 mm × 47.6 mm (10.24" × 9.36" × 1.87") (W × D × H)
Packaging Dimensions	344.0 mm × 89.0 mm × 287.0 mm (13.54" × 3.50" × 11.30") (W × D × H)
Operating Temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage Temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Operating Humidity	10%–90% (RH), non-condensing
Installation	Desktop
Certifications	CE-LVD: IEC 62368-1:2014 CE-EMC: EN IEC 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, EN 55032:2015+A11:2020, EN 55035:2017+A11:2020, EN 55024:2010+A1:2015, EN 50130-4:2011+A1:2014

## Dimensions (mm[inch])

