

# TDHDX4-4K-AI3

# 4 Channels Penta-brid 4K-N/5MP Mini 1U 1HDD Digital Video Recorder



- · H.265+/H.265 dual-stream video compression
- · Supports all-channels AI Coding
- Supports HDCVI/AHD/TVI/CVBS/IP video inputs
- Max 8 channels IP camera inputs, each channel up to 8MP; Max 64
   Mbps incoming bandwidth
- Up to 4 channels video stream (analog channel) Perimeter Protection
- Up to 4 channels video stream (analog channel) SMD Plus
- Up to 1 channel video stream (analog channel) human face recognition
- IoT & POS functionalities



#### **Series Overview**

TOUGHDOG Technology, a world-leading video-centric smart IoT solution and service provider, debuted its new series, TDHDX4-4K-AI3 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**

#### **Face Recognition**

TOUGHDOG Face Recognition technology extracts the features of captured faces and compares them with that in face database to recognize the person identity.

\*The Face Recognition is conflicted with SMD Plus and Perimeter Protection.

#### **SMD Plus**

With intelligent algorithm, TOUGHDOG 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.

#### **Perimeter Protection**

Automatically filters out false alarms caused by animals, rustling leaves, bright lights, etc. Enables system to act secondary recognition for the targets. Improves alarm accuracy.

#### Scheduled AI

This technology allows multiple AI functions to be set for one channel based on time frames, eliminating the need to manually configure the system to switch between functions each time. Scheduled AI greatly increases efficiency and widens the number of scenarios that the device can be used in.

#### **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 Al-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.

#### **Customizable Alarm Audio**

Designed for your convenience, the TiOC alarm can be customized to meet your needs. It is flexible, allowing you to directly upload your customized audio through the mobile app and XVR.

#### Al Coding

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

#### **Audio over Coax**

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

# TDHDX4-4K-AI3



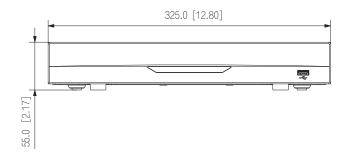
Access Canon; Samsung  Compression Standard  Video Compression Ai Coding; H.265+; H.265+; H.264+; H.264  Operating System Embedded Linux Audio Compression G.711a; G.711u; PCM  Operating Interface Web; Local GUI  Perimeter Protection Perimeter Performance Ab pk Recorder (Number of Channels)  Face Detection Face Attributes General Model : 1 channel, 10 IVS for each channel Sheard  Face Detection Face Attributes General Model : 2 channels, 10 IVS for each channel Sheard  Face Detection Face Detection Face Attributes  Face Detection Face Recognition Face Recognitio	Technical Specificati	on	Third-party Camera	ONVIF; RTSP; Panasonic; Sony; Axis; Arecont; Pelco;	
Main Processor  Departing System  Checkdeed Linux  Departing priefface  Well local Cult  Perimeter Protection					
Operating System  Operating System  Operating Interface  Web; Incal Gill  Addressed Model: 1 charmed; 10 NS for each charmed Carenath Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 charmed; 10 NS for each charmed General Model: 4 Charmed; 10 NS for each Gene		Industrial-grade processor	·		
Perimeter Protection	Operating System		,		
Network Perimeter Protection P			Audio Compression	G.711a; G.711u; PCM	
Perimeter Performance Al by Recorder (Number of Cohamels). In Cohamels (1) Post of each channel (1) Post for each			Network	Network	
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Face Attributes Cander; age group, glasses, expressions face mask, bound Performance of Al by Recorder (Number of Channels) Face Detection Fa	by Recorder (Number of		Mobile Phone Access	iOS; Android	
Face Detection Face Detection Face Detection Face Detection Face Recognition Face Recognition Face Recognition Face Recognition Face Recognition Face Recognition Face Database Capacity Up to 0 face databases and 20,000 images.  Face Recognition Face Recognition Face Database Capacity Up to 10 face databases and 20,000 images.  Face Recognition Face Recognition Performance of Al by Recorder Plumber of Channels)  SMD Plus  Face Recognition Performance of Al by Recorder Rumber of Channels  Adding Capacity  A channel Service and nection detection; intelligent, alarm; POS  Marriage Recognition Performance of Al by Recorder Rumber of Channels  SMD Plus  A channel Service and nection detection; Marriage Recognition Performance of Al by Recorder Rumber of Channels  SMD Plus  A channel Service and nection detection; Marriage Recognition Public Recorder Rumber of Channels  SMD Plus  A channel Service and nection detection; Marriage Rumber of Recorder Rumber Rumber of Recorder Rumber Rumber of Recorder Rumber	Face Detection		Interoperability		
Performance of Al by Recording Playback	Face Attributes		Browser	IE9 or later	
Record Number of Channels Channels Playback (Playback Channels) Face Recognition Face Recog		1 showed (such a Ofess in section)	Network Mode	Single-address mode	
Face Recognition Face Database Capacity Face Recognition Face Database Capacity Face Recognition Face Recogn	Recorder (Number of	1 channel (up to 8 face images/s)	Recording Playbac	Recording Playback	
Face Recognition Performance of Al by Recorder (Number of Channels)  SMD Plus  4. channels Secondary (filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change  4. channels. Secondary (filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change  Audio and Video  Audio and Video  Analog Camera Input  4. channels, BNC: adaptive access by default; HDCVI, AHD, TVI and CVPS access can be configured.  Audio and Video  Analog Camera Input  4. channels, BNC: adaptive access by default; HDCVI, AHD, TVI and CVPS access can be configured.  Alarm Linkage  Alarm Face detection, face recognition, permeter protection  Intelligent Alarm  Face detection, face recognition, permeter protection  Alarm Linkage  Alarm	Face Recognition		Record Mode	General, motion detection; intelligent; alarm; POS	
Performance of Al by Recorder (Number of Channels)  SMD Plus  Alarm  Achannel Secondary filtering for human and motor whole, reducing false alarms caused by leaves, rain and lighting condition change  Audio and Video  Analog Camera Input  Achannels, BNC: adaptive access by default, HOCVI, AHD, TVI and CVBS access can be confligured.  Analog Camera Input  Alarm  Anomaly Alarm  Anomaly Alarm  No disk, disk error, low space, offline, ip conflict, MAC conflict  Intelligent Alarm  Face detection, face recognition, perimeter protection  Intelligent Alarm  Face detection, face recognition, perimeter protection  Intelligent Alarm  Face detection, face recognition, perimeter protection  Analog Camera Input  Alarm Linkage  Accessor on troller, voice prompt, buzzer, log, preset, ema 2009;89:530 fps. 2709;89:530 fps. 2709;	Face Database Capacity	Up to 10 face databases and 20,000 images.	Recording Playback	1/4	
Recorder (Number of Channels)  SMD Plus  A-channel- Secondary filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change  Audio and Video  Analog Camera Input  A-channel- Secondary filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change  Audio and Video  Analog Camera Input  A-channels, BNC adaptive access by default; HDCVI, AND, TVI and CVMS access can be configured.  1. CVI: 4K, 6 MP, 5 MP, 4 MP, 1080p.@25/30 fps, 720p.@25/30 fps,	•		Backup Method	USB device and network	
SMD Plus by Recorder vehicle , reducing false alarms caused by leaves, rain and lighting condition change and vehicle , reducing false alarms caused by leaves, rain and lighting condition change and lighting condition conflict.  Analog Camera Input Animal Probability of the lighting condition change and lighting condition conflict.  Animal Lighting Camera Input Animal Probability of the lighting condition condition changes and lighting condition changes. The Animal RCA Animal RCA Addition into the lighting condition change and lighting condition changes and lighting condition changes. Port of the Animal RCA Addition change and lighting conditions are converted to 10 channels by the section of the Animal RCA Addition change and lighting conditions are converted to 10 channels. In the Animal RCA Addition change and lighting conditions are converted to 10 channels by the Animal RCA Addition changes and lighting conditions are converted to 10 channels. In	Recorder (Number of	1 channel	Playback Mode		
SMD Plus by Recorder    vehicle   reducing false alarms caused by leaves, rain and lighting condition change   Anomaly Alarm   No disk, disk error, low space, offline, ip conflict, MAC conflict   Anomaly Alarm   No disk, disk error, low space, offline, ip conflict, MAC conflict   Intelligent Alarm   Face detection, face recognition, perimeter protection   Analog Camera Input   4 channels, BNC: adaptive access by default; HDCVI, AHD, TVI and CVBS access can be configured.   Alarm Linkage   Record, snapshot (panoramic), IPC external alarm output access controller, voice prompt, buzzer, log, preset, ema   Ports   Port	SMD Plus		Alarm		
Andionary Alarm  Anomaly Alarm  Conflict  Intelligent Alarm  Face detection, face recognition, perimeter protection  Intelligent Alarm  Face detection, face recognition, perimeter protection  Alarm Linkage  Record, snapshot (panoramic), IPC external alarm output access by default; HDCVI, AHD, TVI and CVSB access can be configured.  Alarm Linkage  Record, snapshot (panoramic), IPC external alarm output access controller, voice prompt, buzzer, log, preset, ema 700p869/650 fps, 720p869/650 fps, 720p869/530 fps, 72	SMD Plus by Recorder	vehicle , reducing false alarms caused by leaves, rain and	General Alarm		
Analog Camera Input  A channels, BNC: adaptive access by default; HDCVI, AHD, TVI and CVBS access can be configured.  1. CVI: 4K, 6 MP, 5 MP, 4 MP, 1080p@25/30 fps, 720p@50/60 fps, 720p@50/60 fps, 720p@50/60 fps, 720p@50/60 fps, 720p@50/60 fps, 720p@50/60 fps, 3, 3 AHD: 4K, 5 MP, 4 MP, 3 MP, 1080p@25/30 fps, 720p@25/30 fps, 720p@25/		lighting condition change	Anomaly Alarm		
Analog Camera Input  TVI and CVBS access can be configured.  1. CVI: 4K, 6 MP, 5 MP, 1 MP, 1080pe 25/30 fps, 720pe 95/60 fps, 720pe 92/30 fps, 2. TVI: 4K, 5 MP, 4 MP, 3 MP, 1080pe 25/30 fps, 720pe 25/30 fps. 3. AHD: 4K, 5 MP, 4 MP, 3 MP, 1080pe 25/30 fps, 720pe 25/30 fps. 4 IP channels of IPC access 4 IP channels of IPC access 4 IP channels by default + 4 channels (analog channels incoming bandwidth: 64 Mbps, recording bandwidth: 64 Mbps and outging bandwidth of 4 Mps and outging bandwidth outging bandwidth of 4 Mps and outging bandwidth of 4 Mps and outging bandwidth of 4 Mps and outging bandwidth outging bandwidth o	Audio and Video		Intelligent Alarm	Face detection, face recognition, perimeter protection	
Camera Input	Analog Camera Input	TVI and CVBS access can be configured.	Alarm Linkage		
Audio Input   1720@25/30 fps.   3. AHD: 4K, 5 MP, 4 MP, 3 MP, 1080@25/30 fps.   2720@25/30 fps.   27		720p@50/60 fps, 720p@25/30 fps. 2. TVI: 4K, 5 MP, 4 MP, 3 MP, 1080p@25/30 fps, 720p@25/30 fps. 3. AHD: 4K, 5 MP, 4 MP, 3 MP, 1080p@25/30 fps,	Ports		
P Camera Input	Camera Input		Audio Input		
are converted to IP channels) Incoming bandwidth: 64 Mbps, recording bandwidth: 64 Mbps and outgoing bandwidth: 64 Mbps *After IP channels are added beyond the existing channels, the AI Function (IVS, SMD, FACE) will be disabled.  Main stream: All channel 4K (1 fps-7 fps); 6MP (1 fps-10 fps); 5MP (1 fps-12 fps); 4K-N, 4MP/3MP (1 fps-15 fps); 5MP (1 fps-12 fps); 4K-N, 4MP/3MP (1 fps-15 fps); D1/CIF (1 fps-25/30 fps); Sub steram: 960H (1 fps-15 fps);			Audio Output	1-channel RCA	
Mbps and outgoing bandwidth: 64 Mbps		are converted to IP channels) incoming bandwidth: 64 Mbps, recording bandwidth: 64 Mbps and outgoing bandwidth: 64 Mbps *After IP channels are added beyond the existing channels, the AI Function (IVS, SMD, FACE) will be	Two-way Talk	Yes (share the same audio input with the first channel)	
Main stream: All channel 4K (1 fps-7 fps); 6MP (1 fps-10 fps); 5MP (1 fps-12 fps); 4K-N, 4MP/3MP (1 fps-15 fps); 4M-N/1080p/720p/960H/D1/CIF (1 fps-25/30 fps); 5MP (1 fps-15 fps); D1/CIF (1 fps-25/30 fps);	IP Camera Input		HDD Interface		
10 fps); SMP (1 fps-12 fps); 4K-N, 4MP/3MP (1 fps-15 fps); 4K-N, 4MP/3MP (1 fps-15 fps); 4M-N/1080p/720p/960H/D1/CIF (1 fps-25/30 fps); Sub steram: 960H (1 fps-15 fps); D1/CIF (1 fps-25/30 fps)			RS-485	1	
Encoding Capacity  fps);4M-N/1880p/720p/960H/D1/CIF (1 fps-25/30 fps); Sub steram: 960H (1 fps-15 fps); D1/CIF (1 fps-25/30 fps)  VGA  1  Dual-stream  Yes  Network Port  1 (10/100 Mbps Ethernet port, RJ-45)  Video Bit Rate  32 kbps-6144 kbps  General  Audio Sampling  8 kHz, 16 bit  Power Supply  12 VDC, 2 A  Audio Bit Rate  64 kbps  Power Consumption  77 W  Net Weight  1.3 kg (2.87 lb)  WGA: 1920 × 1080, 1280 × 1024, 1280 × 720 HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720  HDMI: 3840 × 2160,	Encoding Capacity	10 fps); 5MP (1 fps–12 fps); 4K-N, 4MP/3MP (1 fps–15 fps);4M-N/1080p/720p/960H/D1/CIF (1 fps–25/30 fps); Sub steram: 960H (1 fps–15 fps); D1/CIF (1 fps–25/30	USB	2 USB ports (USB 2.0)	
Dual-stream         Yes         Network Port         1 (10/100 Mbps Ethernet port, RJ-45)           Video Bit Rate         32 kbps-6144 kbps         General           Audio Sampling         8 kHz, 16 bit         Power Supply         12 VDC, 2 A           Audio Bit Rate         64 kbps         Power Consumption         <7 W			HDMI	1	
Video Bit Rate         32 kbps-6144 kbps         General           Audio Sampling         8 kHz, 16 bit         Power Supply         12 VDC, 2 A           Audio Bit Rate         64 kbps         Power Consumption         <7 W			VGA	1	
Audio Sampling 8 kHz, 16 bit Power Supply 12 VDC, 2 A  Audio Bit Rate 64 kbps Power Consumption <7 W  1 HDMI, 1 VGA VGA: 1920 × 1080, 1280 × 1024, 1280 × 720 HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720 When IP extension mode not enabled: 1/4 Product Dimensions 325.0 mm × 257.2 mm × 55.0 mm (12.80" × 10.10" ×	Dual-stream	Yes	Network Port	1 (10/100 Mbps Ethernet port, RJ-45)	
Audio Bit Rate 64 kbps Power Consumption <7 W  1 HDMI, 1 VGA VGA: 1920 × 1080, 1280 × 1024, 1280 × 720 HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720 When IP extension mode not enabled: 1/4 Product Dimensions 325.0 mm × 257.2 mm × 55.0 mm (12.80" × 10.10" ×	Video Bit Rate	32 kbps–6144 kbps	General		
Video Output       1 HDMI, 1 VGA VGA: 1920 × 1080, 1280 × 1024, 1280 × 720 HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720       Net Weight       1.3 kg (2.87 lb)         Multi-screen Display       When IP extension mode not enabled: 1/4       Product Dimensions       325.0 mm × 257.2 mm × 55.0 mm (12.80" × 10.10" ×	Audio Sampling	8 kHz, 16 bit	Power Supply	12 VDC, 2 A	
Video Output         VGA: 1920 × 1080, 1280 × 1024, 1280 × 720         Net Weight         1.3 kg (2.87 lb)           HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720         Gross Weight         1.76 kg (3.88 lb)           Multi-screen Display         When IP extension mode not enabled: 1/4         Product Dimensions         325.0 mm × 257.2 mm × 55.0 mm (12.80" × 10.10" ×	Audio Bit Rate	64 kbps	Power Consumption	<7 W	
HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × Gross Weight 1.76 kg (3.88 lb)  Multi-screen Display When IP extension mode not enabled: 1/4 Product Dimensions 325.0 mm × 257.2 mm × 55.0 mm (12.80" × 10.10" ×	Video Output	VGA: 1920 × 1080, 1280 × 1024, 1280 × 720 HDMI: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 ×	Net Weight	1.3 kg (2.87 lb)	
Multi-screen Display			Gross Weight	1.76 kg (3.88 lb)	
	Multi-screen Display	·	Product Dimensions		

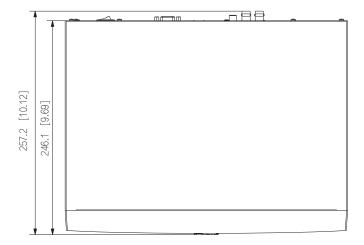


Packaging Dimensions	372.0 mm $\times$ 308.0 mm $\times$ 117.0 mm (14.65" $\times$ 12.13" $\times$ 4.61") (W $\times$ D $\times$ H)		
Operating Temperature	-10 °C to +55 °C (+14 °F to +131 °F)		
Operating Humidity	0%-90% (RH)		
Installation	Desktop		
Certifications	FCC: Part 15 Subpart B CE: CE-LVD: EN 60950-1/IEC 60950-1 CE-EMC: EN 61000-3-2; EN 61000-3-3; EN 55032; EN50130; EN 55024		

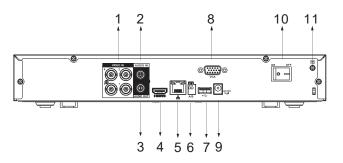
Ordering Information				
Туре	Model	Description		
4 Channels	TDHDX4-4K-AI3	Digital Video Recorder		

### Dimensions (mm[inch])





## **Panels**



- 1 VIDEO IN 2 AUDIO IN, RCA Connector
- 3 AUDIO OUT, RCA Connector 4 HDMI Port
- Network Port 6 RS-485 Port USB Port 8 VGA Port
- 9 Power Input 10 Power Switch
- 11 Ground