

Network

TNM-X6320A3F2WT1-M

Bi-spectrum AI Thermal Camera

Key Features

- ATEX and IECEx certified
- Electro-polished 316L stainless steel on all welded assemblies
- Camera station window in toughened glass

Design and specifications are subject to change without notice. The latest product information / specification can be found at HanwhaVision.com
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Bi-spectrum AI Thermal Camera



Specifications

Video		Visible	Thermal
Imaging Device	Size	1/2.8"	
	Type	CMOS	Uncooled micro bolometer (384x288)
Resolution		1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	768x576, 384x288
Max. Framerate	H.265/H.264	60fps/50fps(60Hz/50Hz)	8fps
	MJPEG	30fps	8fps
Spectral Range			8~14㎛
NETD			≤30mK
Pixel Size			17㎛
Min. Illumination (Lux)	Color(1/30sec, 30IRE)	0.05	
	BW(1/30sec, 30IRE)	0.005	
Video Out		CVBS: 1.0 Vp-p / 75Ω composite for installation	USB: Micro USB Type B. Preview and installation ONLY. Requires WiFi dongle.

Lens			
Focal Length (mm)		4.44~142.6	9.7
Zoom Ratio	Optical	32x	
	Digital	32x	
Max Aperture Ratio (F number)	Wide	1.6	1.0
	Tele	4.4	
Angular Field of View	Horizontal	64.66°~2.29°	38°
	Vertical	38.08°~1.30°	29°
	Diagonal		47°
iFoV			1.8 mRad
Min. Object Distance		1.5m(4.92ft)	2.8m(9.19ft)
Focus Control		Auto, Oneshot AF	Fixed
Lens Type		DC auto iris	

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Operational

Direction Indicator		Support	
Day & Night		Auto(ICR)	
Backlight Compensation		BLC, HLC, WDR, SSDR	
Wide Dynamic Range (dB)		120	
Digital Noise Reduction		SSNR V	
Digital Image Stabilization		Support	
Defog		Support	
Motion Detection	Quantity	8ea	
	Shape	8point Polygonal zones	
Privacy Masking	Quantity	32ea	6ea
	Shape	Rectangular zones	
	Color / Option	Gray, Green, Red, Blue, Black, White, Mosaic	Gray, Black, White
Gain Control		Low, Middle, High, Off	
White Balance		ATW, AWC, Manual, Indoor, Outdoor, Mercury, Sodium	
Electronic Shutter	Mode	Minimum, Maximum, Anti flicker	
	Speed Range	2~1/12,000sec	
Video Rotation		Flip, Mirror	Flip, Mirror, Hallway view(90°/270°)
Serial Interface		RS-485(Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell)	RS-485
Alarm Interface	In/Out	Input 1ea, Output 1ea	2 configurable I/O ports
Alarm Triggers		Analytics, Network disconnect, Alarm input	Analytics, Network disconnect, Alarm input, Time schedule, MQTT subscription
Alarm Events When Alarm Trigger Occurred		File upload(image): e-mail/FTP, Notification: e-mail, Recording: SD/SDHC/SDXC or NAS recording at event triggers,Alarm output, Handover: PTZ preset	File upload(image): e-mail/FTP, Notification: e-mail, Recording: SD/SDHC/SDXC or NAS recording at event triggers,Alarm output, Handover: PTZ preset, MQTT: publication
Audio In		Selectable(mic in/line in)	
Audio Out		Line out	
Color Pallettes			Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom

Analytics

Classified Object Type		Person, Vehicle
Thumbnail		BestShot

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Analytics

Analytics Events	Based on AI Engine		Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Motion detection
	Normal	Defocus detection, Motion detection, Tampering, Fog detection, Face detection, Audio detection, Sound classification, Virtual area(Lotering, Intrusion, Enter/Exit, Appear/Disappear)	Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear), Temperature detection, Tank level detection, Temperature change detection

Radiometry

Temperature Detect Range			-40°C~550°C
Temperature Accuracy			±2°C(≤150°C), ±15%(>150°C)
Temperature Detection ROI Zones	Quantity		10ea
	Shape / Option		Polygonal
Hybrid Pallettes			Support
Spot Temperature Reading			Support
ROI Condition Monitoring			Above, Below, Increase, Decrease

Network

Ethernet		Metal shielded RJ-45(10/100BASE-T)	Metal shielded RJ-45(10/100/1000BASE-T)
Video Compression		H.265/H.264: Main/Baseline/High, MJPEG	
Audio Compression		G.711 u-law /G.726 selectable,G.726(ADPCM) 8kHz,G.711 8kHz, G.726: 16kbps,24kbps,32kbps,40kbps, AAC-LC: 48kbps at 16kHz	
Smart Codec		Manual, WiseStream II	
Bitrate Control		H.265/H.264: CBR or VBR, MJPEG: VBR	
Streaming	Unicast	Up to 20 users	
	Multicast	Support	
	Multiple Streaming	Up to 10 profiles	
Protocol		IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP(TCP, UDP Unicast), PIM-SM	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, CDP, SRTP(TCP, UDP Unicast), MQTT
Application Programming Interface	ONVIF	S, G, T	S, G, T, M
	Others	SUNAPI(HTTP API), Hanwha Vision Open Platform	
Direct Cloud Connection		Optional (needs gateway)	Support

Security

OS / Firmware Protect	Encrypted firmware	Encrypted firmware, Secure boot, Signed firmware
User authentication	Digest authentication	Digest authentication, Prevent brute-force attack

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Security

Network authentication	IEEE 802.1X(EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2)	
Secure Communication	HTTPS, WSS(WebSocket Secure), SRTP	
Access Control	IP-based access control	
Data Protect	Encryption credentials	
Audit	Access / System / Event Log management	
Device ID	Device certificate(Hanwha Vision Root CA)	
Secure Storage		TPM(Trusted platform module), SDcard partition encrypt(AES-256)
Security Certificate		TPM 2.0 with FIPS 140-2 level2

General

Memory	RAM	1GB	2GB
	Flash	256MB	512MB
Edge Storage	Micro SD/SDHC/SDXC	Max. 256GB x 1slot	Max. 1TB x 1slot

Environmental & Electrical

Operating Condition	Temperature	-40°C~+60°C(-40°F~+140°F)
Input Voltage		230VAC

Mechanical

Color	Silver
Material	Stainless(STS316L)
Product Dimensions	419x641x457
Compatible Conduit Hole	19.1mm(3/4")(M25)

Certifications & Standards

Environment	IEC 60529 IP66, IEC 60529 IP67, II 2 G Ex db IIB+H2 II, 2 D Ex tb IIIC IECEX ATEX certified, INMETRO, Class I II III Division 1 Groups B, C, D, E, F, G, cFMus Approved

DORI (EN62676-4 standard)

Detect (25PPM/ 8PPF)	Wide	60.7m(199.1ft)	
	Tele	1921.3m(6303.4ft)	
Observe (63PPM/ 19PPF)	Wide	24.3m(79.6ft)	
	Tele	768.5m(2521.4ft)	
Recognize (125PPM/ 38PPF)	Wide	12.1m(39.8ft)	
	Tele	384.3m(1260.7ft)	
Identify (250PPM/ 76PPF)	Wide	6.1m(19.9ft)	
	Tele	192.1m(630.3ft)	

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