

Network Thermal

TNM-C4940TDR

Bi-spectrum AI Radiometric Camera VGA thermal / 4K visible

Key Features

- Analytics events based on AI engine (thermal): Object detection, Virtual line (Crossing/Direction), Virtual area (Loitering/Intrusion/Enter/Exit), Motion detection, Temperature detection
- Thermal: 640 x 480 (uncooled) @ 30fps <60mK (NETD), built-in 9.1mm thermal fixed lens (HFoV: 50°),
- Visible: 4K @ 30fps, built-in 4.4~9.3mm motorized varifocal lens (HFoV: 112.1°~47.5°)
- Triple codec H.265/H.264/MJPEG with Wisestream II and WiseStream III (based on AI engine) support
- WDR 120dB, IR viewable length 30m (98ft)
- AI object detection (thermal): Classified object type: Person/Vehicle, BestShot
- Analytics events based on AI engine (thermal): Object detection, Virtual line (Crossing/Direction), Virtual area (Loitering/Intrusion/Enter/Exit), Motion detection, Temperature detection
- AI object detection (visible): Person/Face/Vehicle (car, bus, truck, motorcycle, bicycle)/License Plate, BestShot
- Analytics events based on AI engine (visible): Virtual line (Crossing/ Direction), Virtual area (Loitering/Intrusion/Enter/Exit), Motion detection, Defocus detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear)
- Alarm events: Image upload (e-mail/FTP), Notification (e-mail), Recording (edge/NAS), Alarm output, Handover (PTZ preset), Send message by HTTP/ HTTPS/TCP message), Audio clip playback, MQTT (publication)
- Radiometric: whole FoV area or up 10 user programmable quadrangle ROIs, Temperature detection range from -20°C to 130°C (-4°F to 266°F)
- FIPS 140-2, Level 2
- 2x micro SD card (512GB x2)
- IP66/IP67, IK10
- NEMA4X, NEMA TS 2(2.2.8, 2.2.9)
- PoE+/12VDC
- This product is subject to the Thermal agreement

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Bi-spectrum AI Radiometric Camera
VGA thermal / 4K visible



Specifications

Video		Thermal	Visible
Imaging Device	Size		1/1.8"
	Type	Uncooled micro bolometer (640x480)	CMOS
Resolution		1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360	3840x2160, 3072x1728, 2688x1520, 2592x1944, 2560x1440, 2048x1536, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
Max. Framerate	H.265/H.264	30fps/25fps(60Hz/50Hz)	
	MJPEG	3fps	1fps
	Others	Max. 15fps when both channel AI on	
Spectral Range		8~14㎛	
NETD		≤60mK	
Pixel Size		12㎛	
Min. Illumination (Lux)	Color(1/30sec, 30IRE)		0.06
	BW(1/30sec, 30IRE)		0.004
Video Out		USB: Micro USB Type B. Preview and installation ONLY. Requires WiFi dongle.	

Lens

Focal Length (mm)		9.1	4.4~9.3
Max Aperture Ratio (F number)	Wide	1.0	1.3
	Tele		2.15
Angular Field of View	Horizontal	50.0°	112.1°~47.5°
	Vertical	37.0°	58.0°~26.6°
	Diagonal	63.8°	137.5°~54.6°
iFoV		1.319mRad	
Min. Object Distance		3.5m(11.48ft)	1.75m(5.74ft)
Focus Control		Fixed	Simple focus

Pan / Tilt / Rotate

Pan / Tilt / Rotate Range	Pan	-170° ~+170°
	Tilt	-40°~50°

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Operational

Day & Night			Auto(ICR)
Backlight Compensation			BLC, WDR, SSDR
Wide Dynamic Range (dB)			120
Digital Noise Reduction			WiseNR II (Based on AI engine), SSNR V
Digital Image Stabilization		Support(built-in gyro sensor)	
Motion Detection	Quantity	8ea	
	Shape	8point Polygonal zones	
Privacy Masking	Quantity	6ea	
	Shape	Rectangular zones	
	Color / Option	Gray, Black, White	
Gain Control			Low, Middle, High
White Balance			ATW, AWC, Manual, Indoor, Outdoor
LDC			Support
Electronic Shutter	Mode		Minimum, Maximum, Anti flicker, Prefer shutter control(Based on AI engine)
	Speed Range		1/5~1/12,000sec
Alarm Interface	In/Out	4 configurable I/O ports	
Alarm Triggers		Analytics, Network disconnect, Alarm input, 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,send message by HTTP/HTTPS/TCP, MQTT: publication	
Audio In		Selectable(mic in/line in)	
Audio Out		Line out	
Light Type		IR LED	
Light Viewable Length	IR	30m(98.42ft)	
IR Wavelength		850nm	
Color Pallettes		Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom	

Analytics

Classified Object Type		Person, Vehicle	Person, Face, Vehicle, License plate
Attributes	Vehicle		Type(car, bus, truck, motorcycle, bicycle)
Thumbnail		BestShot	
Analytics Events	Based on AI Engine	Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit)	
	Normal	Motion detection, Temperature detection	Defocus detection, Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Lotering, Intrusion, Enter/Exit, Appear/Disappear)

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Radiometry

Temperature Detect Range		-20°C~130°C	
Temperature Accuracy		±5°C(≤100°C), ±20%(>100°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(10/100/1000BASE-T)	
Video Compression		H.265: Main, H.264: Main/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		WiseStream II	Manual, WiseStream III
Bitrate Control		H.265/H.264: CBR or VBR, MJPEG: VBR	
Streaming	Unicast	Up to 6 users	
	Multicast	Support	
	Multiple Streaming	Up to 3 profiles	
Protocol		IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMPv2, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, CDP, SRTP(TCP, UDP Unicast), MQTT	
Application Programming Interface	ONVIF	S, T, M	
	Others	SUNAPI(HTTP API), Hanwha Vision Open Platform	

Security

OS / Firmware Protect	Encrypted firmware, Secure boot, Signed firmware
User authentication	Digest authentication
Network authentication	IEEE 802.1X(EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2)
Secure Communication	HTTPS, WSS(WebSocket Secure)
Access Control	IP-based access control
Data Protect	Encryption credentials, Encrypt compress for live recording file export
Audit	Access / System / Event Log management
Device ID	Device certificate(Hanwha Vision Root CA)
Secure Storage	HTPM(Hanwha Trusted Platform Module), SDcard partition encrypt(AES-256)
Security Certificate	TPM 2.0 with FIPS 140-2 level2

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General

Memory	RAM	4GB
	Flash	512MB
Edge Storage	Micro SD/SDHC/SDXC	Max. 256GB x 2slot(Total 512GB)

Environmental & Electrical

Operating Condition	Temperature	-40°C~+60°C(-40°F~+140°F)
	Humidity	0~95% RH(non-condensing)
	Others	Start up should be done at above -30°C
Storage Condition	Temperature	-50°C~+60°C(-58°F~+140°F)
	Humidity	0~90% RH(non-condensing)
Input Voltage		PoE+(IEEE802.3at, Class4), 12VDC
Power Consumption	PoE	Max. 25.5W, Typical 16.0W
	12VDC	Max. 21.5W, Typical 14.0W

Mechanical

Color	White
Material	Aluminum
RAL Code	RAL9003
Product Dimensions	353.4(W)x287.5(H)x191.2(D)mm(13.92x11.32x7.53")
Product Weight	4.53kg(9.99lb)

Certifications & Standards

EMC	FCC 47 CFR 15 Subpart B Class A, ICES-3(A)/NMB-3(A), CE/UKCA - EN55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3, VCCI CISPR 32 Class A, RCM AS-NZS CISPR 32 Class A
Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1
Environment	IEC 60529 IP66, IEC 60529 IP67, IEC 62262 IK10, NEMA 250 type 4X, NEMA TS 2-2013 (2.2.8, 2.2.9)

DRI (Johnson's Criteria)

Detection	Person(1.67PPM)	412m(1,351ft)	
	Vehicle(0.65PPM)	1,052m(3,452ft)	
Recognition	Person(6.67PPM)	103m(338ft)	
	Vehicle(2.61PPM)	263m(863ft)	
Identification	Person(13.33PPM)	51m(169ft)	
	Vehicle(5.22PPM)	132m(432ft)	

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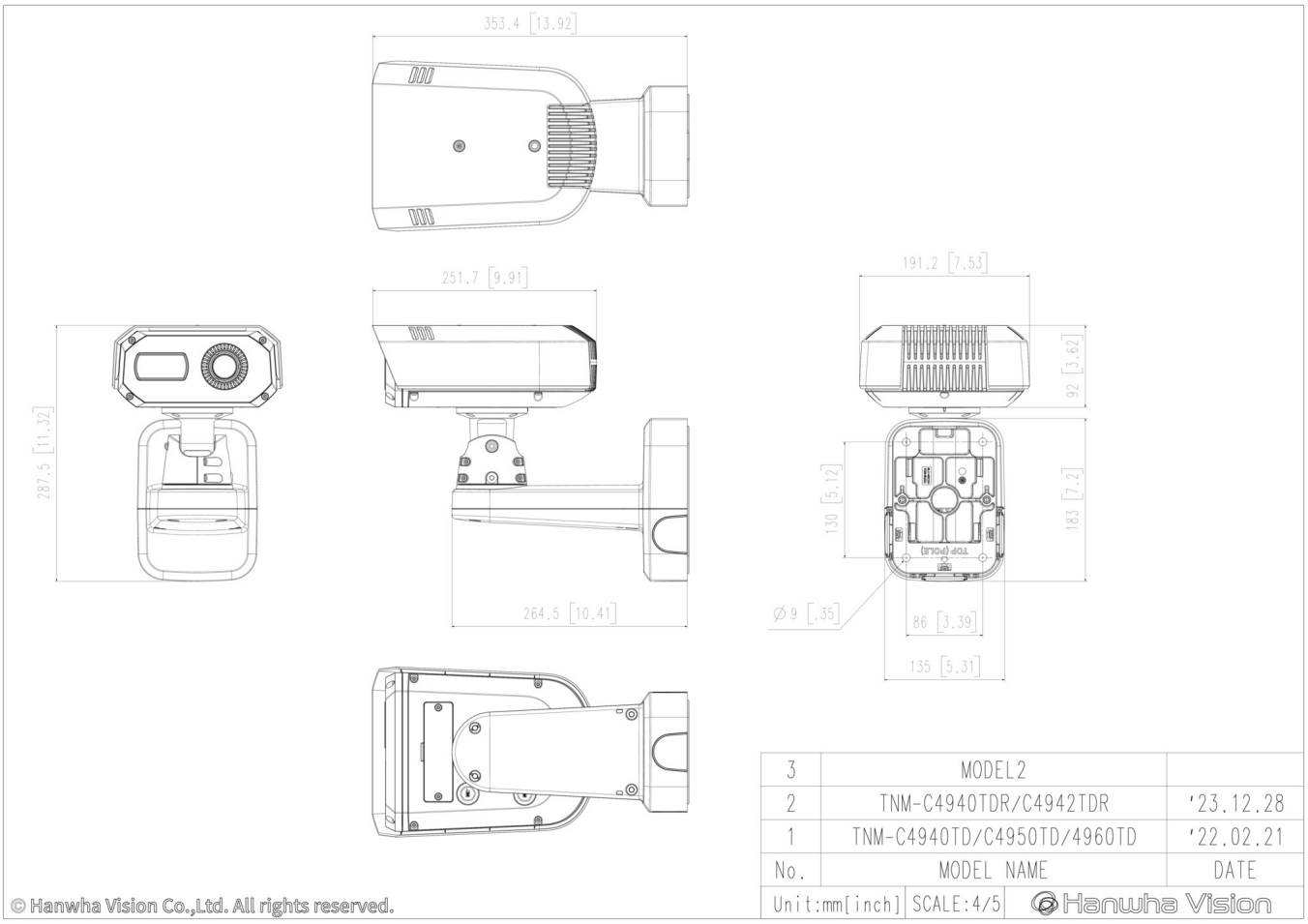
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CAD

Unit: mm [inch]



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