



Network

Thermal

## TNM-C4950TD

Bi-spectrum AI Thermal Camera



### Key Features

- Bi-spectrum: VGA thermal & 8MP visible sensor
- Dual (thermal & visible) channel by one device, one IP
- Maximum 30fps @ all resolutions (H.265/H.264)
- Lens : 13.5mm fixed thermal & 10.9~29mm motorized varifocal visible
- Day & Night(ICR), WDR(120dB)
- Noise reduction : WiseNR II (Based on AI engine, visible only)
- Smart codec : WiseStream III (Based on AI engine, visible), WiseStream II (thermal)
- Video Analytics based on AI
- IP66/IP67, IK10, NEMA4X, NEMA TS 2(2.2.8, 2.2.9)
- PoE+(IEEE802.3at), 12VDC
- Wall & Pole mount all-in-one design

## TNM-C4950TD

Bi-spectrum AI Thermal Camera



### 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)	30fps/25fps(60Hz/50Hz)
	MJPEG	3fps	1fps
	Others	Max. 15fps when both channel AI on	Max. 15fps when both channel AI on
Spectral Range		8~14 $\mu$ m	
NETD		$\leq$ 60mK	
Pixel Size		12 $\mu$ m	
Min. Illumination (Lux)	Color(1/30sec, 30IRE)		0.06
	BW(1/30sec, 30IRE)		0.005
Video Out		USB: Micro USB Type B	

### Lens

Focal Length (mm)		13.5	10.9~29
Zoom Ratio	Optical		2.6x
Max Aperture Ratio (F number)	Wide	1.0	1.7
	Tele		1.73
Angular Field of View	Horizontal	31.9°	42.0°~15.0°
	Vertical	24.2°	22.8°~8.4°(Tele)
	Diagonal	39.5°	48.7°~17.1°
iFoV		0.47mRad	
Min. Object Distance		7.6m(24.93ft)	2.5m(8.20ft)
Focus Control		Fixed	Simple focus

## Pan / Tilt / Rotate

Pan / Tilt / Rotate Range	Pan	-170°~+170°
	Tilt	-40° ~ 50°
Sequence	Preset(255ea)	

## Operational

Day & Night	Auto(ICR)	
Backlight Compensation	BLC, WDR, SDR	
Wide Dynamic Range (dB)	120	
Digital Noise Reduction	WiseNR II (Based on AI engine), SSNR V	
Digital Image Stabilization	Support(built-in gyro sensor)	
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

## Analytics

Classified Object Type	Person, Vehicle	Person, Face, Vehicle, License plate
Attributes	Vehicle	Type(car, bus, truck, motorcycle, bicycle)
Thumbnail	BestShot	BestShot
Analytics Events	Based on AI Engine	Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Stopped vehicle, Traffic jam
	Normal	Motion detection, Temperature change detection
Business Intelligence	Normal	Vehicle counting

## Network

Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)	
Video Compression	H.265/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	
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

## Network

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, CDP, SRTP(TCP, UDP Unicast)
Application Programming Interface	ONVIF	S, T
	Others	SUNAPI(HTTP API), Hanwha Vision Open Platform
Direct Cloud Connection		Support

## 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

## 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	0~95% RH(non-condensing)
Input Voltage		PoE+(IEEE802.3at, Class4), 12VDC
Power Consumption	PoE	Max. 23.5W, Typ 16.0W
	12VDC	Max. 19.5W, Typ 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")

## Mechanical

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, KS C 9832 Class A, KS C 9835
Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1
Environment	IEC 60529 IP66, IEC 60529 IP67, IEC 62262 IK10, NEMA TS 2-2013 (2.2.7, 2.2.8, 2.2.9), NEMA 250 type 4X

## DORI (EN62676-4 standard)

Detect (25PPM/ 8PPF)	Wide	200.1m(656.40ft)
	Tele	583.4m(1913.89ft)
Observe (63PPM/ 19PPF)	Wide	80.0m(262.56ft)
	Tele	233.3m(765.56ft)
Recognize (125PPM/ 38PPF)	Wide	40.0m(131.28ft)
	Tele	116.7m(382.78ft)
Identify (250PPM/ 76PPF)	Wide	20.0m(65.64ft)
	Tele	58.3m(191.39ft)

# TNM-C4950TD

Bi-spectrum AI Thermal Camera



## CAD

Unit: mm [inch]

