



Network

Multi-sensor

# TNM-C4960TD

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 : 25mm 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 (visible)
- IP66/IP67, NEMA4X
- PoE+(IEEE802.3at), 12VDC
- Wall & Pole mount all-in-one design

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Bi-spectrum AI Thermal Camera



## Specifications

Video	Thermal	Visible
<b>Imaging Device</b>	Uncooled micro bolometer	1/1.8" CMOS
<b>Resolution</b>	1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360	3840x2160, 3072x1728, 2592x1944, 2688x1520, 2560x1440, 2048x1536, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
<b>Max. Framerate</b>	H.265/H.264: Max. 30fps MJPEG: Max. 3fps	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 1fps/1fps(60Hz/50Hz)
<b>NETD</b>	<60mK	None
<b>Pixel Size</b>	12µm	None
<b>Min. Illumination</b>	None	Color: 0.06Lux(F1.7, 1/30sec) BW: 0.005Lux(F1.7, 1/30sec)
<b>Video Out</b>	USB : Micro USB Type B	
<b>Lens</b>		
<b>Focal Length (Zoom Ratio)</b>	25mm fixed focal	10.9~29mm(2.6x) motorized varifocal
<b>Max. Aperture Ratio</b>	F1.0	F1.7(Wide)~F1.73(Tele)
<b>Angular Field of View</b>	H: 17.4, V: 13.1, D: 21.6	H:42.0°(Wide)~15.0°(Tele) / V:22.8°(Wide)~8.4°(Tele) / D:48.7°(Wide)~17.1°(Tele)
<b>Min. Object Distance</b>	26m(85.30ft)	Wide: 2.5m(8.20ft) / Tele: 6m(19.68ft)
<b>Focus Control</b>	Fixed	Simple focus
<b>Operational</b>		
<b>Camera Title</b>	Displayed up to 85 characters	
<b>Day &amp; Night</b>	None	Auto(ICR)
<b>Backlight Compensation</b>	None	BLC, WDR, SSSDR
<b>Wide Dynamic Range</b>	None	WDR(120dB)
<b>Digital Noise Reduction</b>	None	SSNR V, WiseNR II
<b>Digital Image Stabilization</b>	None	Support(built-in gyro sensor)
<b>Motion Detection</b>	8ea, polygonal zones	
<b>Privacy Masking</b>	6ea, rectangle zones - Color: Gray/Black/White	
<b>Gain Control</b>	None	Low / Middle / High
<b>White Balance</b>	None	ATW / AWC / Manual / Indoor / Outdoor
<b>LDC</b>	None	Support
<b>Electronic Shutter Speed</b>	None	Minimum / Maximum / Anti flicker(1/5~1/12,000sec) Auto prefer shutter control(Based on AI engine)
<b>Analytics</b>	- Analytics events : Directional detection, Motion detection, Enter/Exit, Virtual line, Temperature Change detection	- Analytics events based on AI engine(NPU) : Object detection (Person/Face/Vehicle(car/truck/bus/bicycle/motorcycle)/License plate), Bestshot, IVA (Virtual line/Area, Enter/Exit, Loitering, direction, intrusion), Stopped vehicle, Traffic jam - Analytics events : Defocus detection, Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Appear/Disappear
<b>Alarm I/O</b>	4 configurable I/O ports	
<b>Alarm Triggers</b>	Analytics, Network disconnect, Alarm input	
<b>Alarm Events</b>	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) - Audio clip playback	

<b>Audio In</b>	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
<b>Audio Out</b>	Line out, Max.output level: 1Vrms
<b>Color Palettes</b>	Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom      None

## Network

<b>Ethernet</b>	Metal shielded RJ-45(10/100/1000BASE-T)
<b>Video Compression</b>	H.265/H.264: Main/High, MJPEG
<b>Audio Compression</b>	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
<b>Smart Codec</b>	WiseStream II      Manual(5ea area), WiseStreamIII
<b>Bitrate Control</b>	H.264/H.265: CBR or VBR MJPEG: VBR
<b>Streaming</b>	Unicast(6 users) / Multicast Multiple streaming(Up to 3 profiles)
<b>Protocol</b>	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)
<b>Security</b>	TPM 2.0 (FIPS 140-2 level 2) HTTPS(SSL) login authentication Digest login authentication IP address filtering User access log 802.1X authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2) Device certificate(Hanwha Techwin Root CA, pre-installed) Secure boot, Secure firmware
<b>Application Programming Interface</b>	ONVIF Profile S/T SUNAPI(HTTP API) Wisenet open platform (visible channel only)

## General

<b>Webpage Language</b>	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
<b>Edge Storage</b>	Micro SD/SDHC/SDXC 2slots 512GB
<b>Memory</b>	4GB RAM, 512MB FLASH

## Environmental & Electrical

<b>Operating Temperature / Humidity</b>	-40°C to +60°C(-58°F to +140°F) * Start up should be done at above -30°C less than 95% RH(non-condensing)
<b>Storage Temperature / Humidity</b>	-50°C to +60°C(-58°F to +140°F) / Less than 95% RH(Non-condensing)
<b>Certification</b>	IP66/IP67, IK10, NEMA4X, NEMA TS 2(2.2.8, 2.2.9)
<b>Input Voltage</b>	PoE+(IEEE802.3at, Class4), 12VDC
<b>Power Consumption</b>	PoE+ : Max 23.5W 12VDC : Max 19.5W

## Mechanical

<b>Color / Material</b>	White / Aluminum
<b>RAL Code</b>	RAL9003
<b>Product Dimensions / Weight</b>	353.4 * 287.5 * 191.2mm (13.92 * 11.32 * 7.53in) / 4.533kg
<b>Detect (25PPM/ 8PPF)</b>	None      Wide: 200.1m(656.40ft) / Tele: 583.4m(1913.89ft)
<b>Observe (63PPM/ 19PPF)</b>	None      Wide: 80.0m(262.56ft) / Tele: 233.3m(765.56ft)
<b>Recognize (125PPM/ 38PPF)</b>	None      Wide: 40.0m(131.28ft) / Tele: 116.7m(382.78ft)
<b>Identify (250PPM/ 76PPF)</b>	None      Wide: 20.0m(65.64ft) / Tele: 58.3m(191.39ft)

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CAD

Unit: mm [inch]

