

Network Thermal

# TNM-C4940TDR

## Bi-spectrum AI IR Thermal Camera

## Key Features

- Radiometry AI Bi-Spectrum for Outdoor environment
- Bi-spectrum monitoring with 8MP visible & VGA thermal
- AI based Object classification with Both Channels (person/vehicle)
- Remote Temperature Monitoring within -20 ~ 130°C range
- 10 of polygonal ROI areas for temperature monitoring
- Improved All-in-One installation solution (wall&pole)

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# TNM-C4940TDR

Bi-spectrum AI IR 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) | |
| | 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,<br>Notification: e-mail,<br>Recording: SD/SDHC/SDXC or NAS recording at event triggers,Alarm output,<br>Handover: PTZ preset,send message by HTTP/HTTPS/TCP,<br>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,<br>H.264: Main/High,MJPEG | |
| Audio Compression | | G.711 u-law /G.726 selectable,G.726(ADPCM) 8kHz,G.711 8kHz,<br>G.726: 16kbps,24kbps,32kbps,40kbps,<br>AAC-LC: 48kbps at 16kHz | |
| Smart Codec | | WiseStream II | Manual, WiseStream III |
| Bitrate Control | | H.265/H.264: CBR or VBR,<br>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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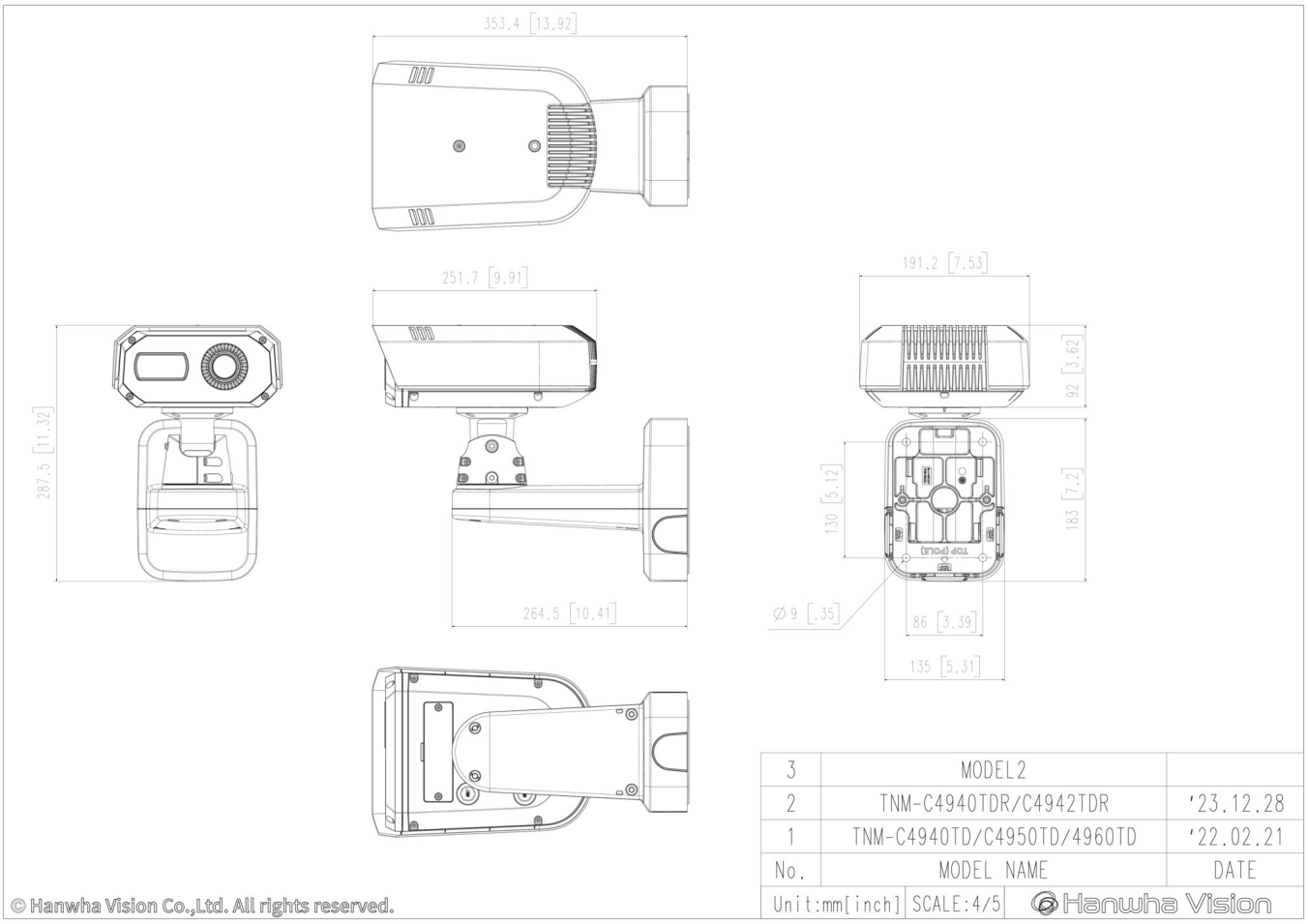
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## CAD

**Unit:** mm [inch]




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