



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
- IP66/IP67, IK10, NEMA4X, NEMA TS 2(2.2.8, 2.2.9)
- PoE+(IEEE802.3at), 12VDC
- Wall & Pole mount all-in-one design

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Bi-spectrum AI Thermal Camera



## Specifications

| Video                       | Thermal                                                                                                                         | Visible                                                                                                                                                                                           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Imaging Device              | Uncooled micro bolometer                                                                                                        | 1/1.8" CMOS                                                                                                                                                                                       |
| Resolution                  | 640x480 (can be scaled up to 1280x960)<br>1280x960, 1280x720, 1024x768, 800x600,<br>800x448, 720x576, 720x480, 640x480, 640x360 | 3840x2160, 3072x1728, 2592x1944, 2688x1520,<br>2560x1440, 2048x1536, 1920x1080, 1600x1200,<br>1280x1024, 1280x960, 1280x720, 1024x768,<br>800x600, 800x448, 720x576, 720x480, 640x480,<br>640x360 |
| Max. Framerate              | H.265/H.264: Max. 30fps/25fps<br>(AI 2CH ON - 15fps)<br>MJPEG: Max. 3fps                                                        | H.265/H.264: Max. 30fps/25fps<br>(AI 2CH ON - 15fps)<br>MJPEG: Max. 1fps                                                                                                                          |
| NETD                        | <60mK                                                                                                                           |                                                                                                                                                                                                   |
| Pixel Size                  | 12μm                                                                                                                            |                                                                                                                                                                                                   |
| Min. Illumination           |                                                                                                                                 | Color: 0.06Lux(F1.7, 1/30sec)<br>BW: 0.005Lux(F1.7, 1/30sec)                                                                                                                                      |
| Video Out                   | USB : Micro USB Type B                                                                                                          |                                                                                                                                                                                                   |
| Lens                        |                                                                                                                                 |                                                                                                                                                                                                   |
| Focal Length (Zoom Ratio)   | 25mm fixed focal                                                                                                                | 10.9~29mm(2.6x) motorized varifocal                                                                                                                                                               |
| Max. Aperture Ratio         | F1.0                                                                                                                            | F1.7(Wide)~F1.73(Tele)                                                                                                                                                                            |
| Angular Field of View       | H: 17.4°, V: 13.1°, D: 21.6°                                                                                                    | H:42.0°(Wide)~15.0°(Tele) /<br>V:22.8°(Wide)~8.4°(Tele) /<br>D:48.7°(Wide)~17.1°(Tele)                                                                                                            |
| Min. Object Distance        | 26m(85.30ft)                                                                                                                    | Wide: 2.5m(8.20ft) / Tele: 6m(19.68ft)                                                                                                                                                            |
| Focus Control               | Fixed                                                                                                                           | Simple focus                                                                                                                                                                                      |
| Operational                 |                                                                                                                                 |                                                                                                                                                                                                   |
| Camera Title                | Displayed up to 85 characters                                                                                                   |                                                                                                                                                                                                   |
| Day & Night                 |                                                                                                                                 | Auto(ICR)                                                                                                                                                                                         |
| Backlight Compensation      |                                                                                                                                 | BLC, WDR, SSDR                                                                                                                                                                                    |
| Wide Dynamic Range          |                                                                                                                                 | WDR(120dB)                                                                                                                                                                                        |
| Digital Noise Reduction     |                                                                                                                                 | SSNR V, WiseNR II                                                                                                                                                                                 |
| Digital Image Stabilization |                                                                                                                                 | Support(built-in gyro sensor)                                                                                                                                                                     |
| Motion Detection            | 8ea, polygonal zones                                                                                                            |                                                                                                                                                                                                   |
| Privacy Masking             | 6ea, rectangle zones<br>- Color: Gray/Black/White                                                                               |                                                                                                                                                                                                   |
| Gain Control                |                                                                                                                                 | Low / Middle / High                                                                                                                                                                               |
| White Balance               |                                                                                                                                 | ATW / AWC / Manual / Indoor / Outdoor                                                                                                                                                             |
| LDC                         |                                                                                                                                 | Support                                                                                                                                                                                           |
| Electronic Shutter Speed    |                                                                                                                                 | Minimum / Maximum / Anti<br>flicker(1/5~1/12,000sec)<br>Auto prefer shutter control(Based on AI engine)                                                                                           |

|                       |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analytics             | <ul style="list-style-type: none"> <li>- Analytics events based on AI engine : Object detection (Person/Vehicle), Bestshot, IVA (Virtual line/Area, Enter/Exit, Loitering, direction, intrusion), Stopped vehicle, Traffic jam</li> <li>- Analytics events : Motion detection</li> </ul>                                                              | <p>Analytics events based on AI engine</p> <ul style="list-style-type: none"> <li>- Object detection(Person, face, Vehicle(car/bus/truck/motorcycle/bicycle), License plate), Bestshot, Virtual line*(Crossing/Direction), Virtual area*(Loitering/Intrusion/Enter/Exit), Stopped vehicle, Traffic jam</li> <li>- Analytics events : Defocus detection, Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear)</li> </ul> |
| Business Intelligence | Vehicle counting                                                                                                                                                                                                                                                                                                                                      | Vehicle counting                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Alarm I/O             | 4 configurable I/O ports                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Alarm Triggers        | Analytics, Network disconnect, Alarm input                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Alarm Events          | <p>When alarm trigger occurred</p> <ul style="list-style-type: none"> <li>- File upload(image) : e-mail/FTP</li> <li>- Notification : e-mail</li> <li>- Recording : SD/SDHC/SDXC or NAS recording at event triggers</li> <li>- Alarm output</li> <li>- Handover(PTZ preset, Send message by HTTP/HTTPS/TCP)</li> <li>- Audio clip playback</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Audio In              | Selectable(mic in/line in)<br>Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Audio Out             | Line out, Max.output level: 1Vrms                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Color Palettes        | Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                   |                                                                                                                                                                                                                                                                                                       |                                 |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 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<br>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(Sea area), WiseStreamIII |
| Bitrate Control                   | H.264/H.265: CBR or VBR<br>MJPEG: VBR                                                                                                                                                                                                                                                                 |                                 |
| Streaming                         | Unicast(6 users) / Multicast<br>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, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP (TCP, UDP Unicast)                                                                                           |                                 |
| Security                          | TPM 2.0 (FIPS 140-2 level 2)<br>HTTPS(SSL) login authentication<br>Digest login authentication<br>IP address filtering<br>User access log<br>802.1X authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)<br>Device certificate(Hanwha Techwin Root CA, pre-installed)<br>Secure boot, Secure firmware |                                 |
| Application Programming Interface | ONVIF Profile S/T<br>SUNAPI(HTTP API)<br>Wisenet open platform (visible channel only)                                                                                                                                                                                                                 |                                 |

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

## Environmental & Electrical

Design and specifications are subject to change without notice. The latest product information / specification can be found at [HanwhaVision.com](http://HanwhaVision.com)  
 Hanwha Vision is formerly known as Hanwha Techwin.

|                                  |                                                                                                                  |
|----------------------------------|------------------------------------------------------------------------------------------------------------------|
| Operating Temperature / Humidity | -40°C to +60°C (-58°F to +140°F)<br>* Start up should be done at above -30°C<br>less than 95% RH(non-condensing) |
| Storage Temperature / Humidity   | -50°C to +60°C (-58°F to +140°F) / Less than 95% RH(Non-condensing)                                              |
| Certification                    | IP66/IP67, IK10, NEMA4X, NEMA TS 2(2.2.8, 2.2.9)                                                                 |
| Input Voltage                    | PoE+(IEEE802.3at, Class4), 12VDC                                                                                 |
| Power Consumption                | PoE+ : Max 23.5W, Typ 16.0W<br>12VDC : Max 19.5W, Typ 14.0W                                                      |

#### Mechanical

|                             |                                                            |
|-----------------------------|------------------------------------------------------------|
| Color / Material            | White / Aluminum                                           |
| RAL Code                    | RAL9003                                                    |
| Product Dimensions / Weight | 353.4 * 287.5 * 191.2mm (13.92 * 11.32 * 7.53in) / 4.533kg |

#### 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)     |