



Network

Thermal

# TNO-C4042T

VGA AI Tele lens Thermal Camera



## Key Features

- VGA Image Resolution
- 13mm Focal Length
- <16mK NETD
- Person, Vehicle, Vessel Rated
- Person, Vehicle, and Vessel Detection
- Upscaling up to 1280x960 resolution
- Max. 8fps@all resolutions (H.265/H.264, MJPEG)
- MIL-STD, NEMA 4X, NEMA TS Rated

## TNO-C4042T

VGA AI Tele lens Thermal Camera



### Specifications

| Video                         |             |                                                                       |
|-------------------------------|-------------|-----------------------------------------------------------------------|
| Imaging Device                | Type        | Uncooled micro bolometer (640x480)                                    |
| Resolution                    |             | 1280x960, 640x480, 640x360, 320x240                                   |
| Max. Framerate                | H.265/H.264 | 8fps                                                                  |
|                               | MJPEG       | 8fps                                                                  |
| Spectral Range                |             | 8~14 $\mu$ m                                                          |
| NETD                          |             | $\leq 16\text{mK}@25^{\circ}\text{C}$ , F1.0                          |
| Pixel Size                    |             | 17 $\mu$ m                                                            |
| Video Out                     |             | USB: USB Type C. Preview and installation ONLY. Requires WiFi dongle. |
| Lens                          |             |                                                                       |
| Focal Length (mm)             |             | 13                                                                    |
| Max Aperture Ratio (F number) | Wide        | 1.0                                                                   |
| Angular Field of View         | Horizontal  | 49.1°                                                                 |
|                               | Vertical    | 36.4°                                                                 |
|                               | Diagonal    | 62.3°                                                                 |
| iFoV                          |             | 1.31 mRad                                                             |
| Min. Object Distance          |             | 5m(16.4ft)                                                            |
| Focus Control                 |             | Fixed                                                                 |
| Lens Type                     |             | Athermalized                                                          |
| Pan / Tilt / Rotate           |             |                                                                       |
| Pan / Tilt / Rotate Range     | Pan         | 0°~350°                                                               |
|                               | Tilt        | 0°~90°                                                                |
|                               | Rotate      | 0°~350°                                                               |
| Operational                   |             |                                                                       |
| Digital Noise Reduction       |             | WiseNR                                                                |
| Motion Detection              | Quantity    | 8ea                                                                   |
|                               | Shape       | 8point Polygonal zones                                                |

## Operational

|                                          |                |                                                                                                                                                                                                                                                                                  |
|------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Privacy Masking                          | Quantity       | 32ea                                                                                                                                                                                                                                                                             |
|                                          | Shape          | 8point Polygonal zones                                                                                                                                                                                                                                                           |
|                                          | Color / Option | Gray, Green, Red, Blue, Black, White, Mosaic, Purple, Yellow                                                                                                                                                                                                                     |
| Video Rotation                           |                | Flip, Mirror, Hallway view(90°/270°)                                                                                                                                                                                                                                             |
| Serial Interface                         |                | RS-485                                                                                                                                                                                                                                                                           |
| Alarm Interface                          | In/Out         | 2 configurable I/O ports                                                                                                                                                                                                                                                         |
|                                          | Others         | Support extra alarm I/O via optional I/O box                                                                                                                                                                                                                                     |
| Alarm Triggers                           |                | Analytics, Network disconnect, Alarm input, Time schedule, MQTT subscription, Case tampering                                                                                                                                                                                     |
| Alarm Events When Alarm Trigger Occurred |                | File upload(image): e-mail/FTP/SFTP,<br>File upload(video clip): FTP/SFTP,<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,Audio clip playback,<br>MQTT: publication |
| Audio In                                 |                | Selectable(mic in/line in)                                                                                                                                                                                                                                                       |
| Audio Out                                |                | Line out                                                                                                                                                                                                                                                                         |
| Color Palettes                           |                | Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom                                                                                                                                                                                                                  |

## Analytics

|                        |                    |                                                                                                                                                   |
|------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Classified Object Type |                    | Person, Vehicle, Vessel                                                                                                                           |
| Thumbnail              |                    | BestShot                                                                                                                                          |
| Analytics Events       | Based on AI Engine | Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Motion detection, Sound classification          |
|                        | Normal             | Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear), Temperature change detection |

## Network

|                   |                    |                                                                                                                                                                                                                                       |
|-------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethernet          |                    | Metal shielded RJ-45(10/100/1000BASE-T)                                                                                                                                                                                               |
| Video Compression |                    | H.265/H.264: Main/Baseline/High, MJPEG                                                                                                                                                                                                |
| Audio Compression |                    | G.711(PCM): 8kHz(64kbps),<br>G.726(ADPCM): 8kHz(16/24/32/40kbps),<br>AAC-LC: 16kHz(48kbps),<br>OPUS: 16kHz(64kbps)                                                                                                                    |
| Smart Codec       |                    | WiseStream(Based on AI engine)                                                                                                                                                                                                        |
| Bitrate Control   |                    | H.265/H.264: CBR or VBR,<br>MJPEG: VBR                                                                                                                                                                                                |
| Streaming         | Unicast            | Up to 20 users                                                                                                                                                                                                                        |
|                   | Multicast          | Support                                                                                                                                                                                                                               |
|                   | Multiple Streaming | Up to 5 profiles                                                                                                                                                                                                                      |
| Protocol          |                    | IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SFTP, SMTP, ICMP, IGMPv2, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, CDP, SRTP(TCP, UDP Unicast), MQTT, Syslog |

## Network

|                                   |        |                                               |
|-----------------------------------|--------|-----------------------------------------------|
| Application Programming Interface | ONVIF  | S, G, T, M                                    |
|                                   | 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, Prevent brute-force attack                                             |  |
| Network authentication | IEEE 802.1X(EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2)                                            |  |
| Secure Communication   | HTTPS, WSS(WebSocket Secure), SRTP                                                            |  |
| Access Control         | IP-based access control, MAC-based access control, Auto logout                                |  |
| 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         | SDcard partition encrypt(AES-256), Secure element                                             |  |
| Supply Chain Security  | SBOM                                                                                          |  |
| Security Certificate   | Secure element(FIPS 140-3 level3, CC EAL6+), Consumer IoT Security Standard (ETSI EN 303 645) |  |

## General

|                       |                    |                                                                                                                       |
|-----------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------|
| SoC                   | Type               | Wisenet 8                                                                                                             |
| Edge Storage          | Micro SD/SDHC/SDXC | Max. 1TB x 1slot                                                                                                      |
| Edge Storage(OnCloud) | Micro SD/SDHC/SDXC | Max. 1TB x 1slot *Hanwha Vision branded microSD cards have been certified and recommended for OnCloud edge recording. |

## Environmental & Electrical

|                     |             |                                              |
|---------------------|-------------|----------------------------------------------|
| Operating Condition | Temperature | -40°C~+60°C(-40°F~+140°F)                    |
|                     | Humidity    | 0~95% RH(non-condensing)                     |
|                     | Others      | +74°C(+165°F)(Max) based on NEMA-TS 2(2.2.7) |
| Storage Condition   | Temperature | -50°C~+60°C(-58°F~+140°F)                    |
|                     | Humidity    | 0~95% RH(non-condensing)                     |
| Input Voltage       |             | PoE(IEEE802.3af, Class3), 12VDC              |
| Power Consumption   | PoE         | Max. 7.8W, typical 7.4W                      |
|                     | 12VDC       | Max. 8.1W, typical 7.8W                      |

## Mechanical

|                    |                              |
|--------------------|------------------------------|
| Color              | White                        |
| Material           | Aluminum, PC(Polycarbonate)  |
| RAL Code           | RAL9003                      |
| Product Dimensions | ø107.3 x 275mm(ø4.22/10.83") |

## Mechanical

|                         |                                                    |
|-------------------------|----------------------------------------------------|
| Product Weight          | 2000g(4.4 lb)                                      |
| Compatible Conduit Hole | Support conduit compatibility via optional adaptor |
| Compatible Gang Box     | Single, Double, 4" Octagon, Square                 |

## Certifications & Standards

|             |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC         | FCC 47 CFR 15 Subpart B Class 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,IC Regulation ICES-003 Issue 7 Class A,FCC - IC Regulation ICES 003 Issue 7, RCM - EN IEC 63000:2018 Class A, VCCI - EN IEC 63000:2018 Class A                                                                                               |
| Safety      | UL 62368-1, CAN/CSA C22.2 NO. 62368-1                                                                                                                                                                                                                                                                                                                                                                                     |
| Environment | IEC/EN 63000, 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, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78, MIL-STD-810H 501.7, MIL-STD-810H 502.7, MIL-STD-810H 505.7, MIL-STD-810H 506.6, MIL-STD-810H 507.6, MIL-STD-810H 509.7, MIL-STD-810H 510.7, MIL-STD-810H 514.8, MIL-STD-810H 516.8, MIL-STD-810H 521.4 |

## AI Detection Distance

|                                   |      |                     |
|-----------------------------------|------|---------------------|
| Person(1.8m/5.9ft)                | Wide | up to 108m(354ft)   |
| Vehicle(1.45m/4.8ft)              | Wide | up to 153m(502ft)   |
| Vessel(2.4m/7.9ft from Waterline) | Wide | up to 366m(1,200ft) |

## DRI (Johnson's Criteria)

|                |                  |                 |
|----------------|------------------|-----------------|
| Detection      | Person(1.67PPM)  | 420m(1,379ft)   |
|                | Vehicle(0.65PPM) | 1,074m(3,524ft) |
| Recognition    | Person(6.67PPM)  | 105m(345ft)     |
|                | Vehicle(2.61PPM) | 269m(881ft)     |
| Identification | Person(13.33PPM) | 53m(172ft)      |
|                | Vehicle(5.22PPM) | 134m(441ft)     |

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CAD

Unit: mm [inch]

