

Network Thermal

# TNO-C3022TRA

## QVGA Radiometric AI Thermal Camera

## Key Features

- QVGA Image Resolution
- 6.6mm Focal Length
- 8fps Max. Framerate
- -40°C~550°C Temperature Detection

• 6.6mm Focal Length
• AI based object classification (person, vehicle)
• High performance detector applied (17µm, NETD 30mK)
• Smaller and light camera for easy installation and setup
• NEMA 250 type 4X

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QVGA Radiometric AI Thermal Camera



## Specifications

### Video

| | | |
|---|---|---|
| **Imaging Device** | Type | Uncooled micro bolometer (384x288) |
| **Resolution** | | 768x576, 384x288 |
| **Max. Framerate** | H.265/H.264 | 8fps |
| | MJPEG | 8fps |
| **Spectral Range** | | 8~14㎛ |
| **NETD** | | ≤30mK |
| **Pixel Size** | | 17㎛ |
| **Video Out** | | USB: Micro USB Type B. Preview and installation ONLY. Requires WiFi dongle. |

### Lens

| | | |
|---|---|---|
| **Focal Length (mm)** | | 6.6 |
| **Max Aperture Ratio (F number)** | Wide | 1.0 |
| **Angular Field of View** | Horizontal | 60° |
| | Vertical | 43.8° |
| | Diagonal | 77.8° |
| **iFoV** | | 2.6mRad |
| **Min. Object Distance** | | 1.4m(4.59ft) |
| **Focus Control** | | Fixed |

### Pan / Tilt / Rotate

| | | |
|---|---|---|
| **Pan / Tilt / Rotate Range** | Pan | 0°~350° |
| | Tilt | 0°~90° |
| | Rotate | 0°~350° |

### Operational

| | | |
|---|---|---|
| **Motion Detection** | Quantity | 8ea |
| | Shape | 8point Polygonal zones |

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## Operational

| | | |
|---|---|---|
| **Privacy Masking** | Quantity | 6ea |
| | Shape | Rectangular zones |
| | Color / Option | Gray, Black, White |
| **Video Rotation** | | Flip, Mirror, Hallway view(90°/270°) |
| **Serial Interface** | | RS-485 |
| **Alarm Interface** | In/Out | 2 configurable I/O ports |
| **Alarm Triggers** | | Analytics, Network disconnect, Alarm input, Time schedule, 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,<br>MQTT: publication |
| **Audio In** | | Selectable(mic in/line in) |
| **Audio Out** | | Line out |
| **Color Pallettes** | | Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom |

## Analytics

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

## Radiometry

| | | |
|---|---|---|
| **Temperature Detect Range** | | -40°C~550°C |
| **Temperature Accuracy** | | ±2°C(≤150°C), ±15%(>150°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/Baseline/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** | Manual, WiseStream II , WiseStream III |
| **Bitrate Control** | H.265/H.264: CBR or VBR,<br>MJPEG: VBR |

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## Network

| | | |
|---|---|---|
| **Streaming** | Unicast | Up to 20 users |
| | Multicast | Support |
| | Multiple Streaming | Up to 10 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, G, T, M |
| | Others | SUNAPI(HTTP API), Hanwha Vision Open Platform |

## 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 |
| **Data Protect** | Encryption credentials |
| **Audit** | Access / System / Event Log management |
| **Device ID** | Device certificate(Hanwha Vision Root CA) |
| **Secure Storage** | TPM(Trusted platform module), SDcard partition encrypt(AES-256) |
| **Security Certificate** | TPM 2.0 with FIPS 140-2 level2 |

## General

| | | |
|---|---|---|
| **Memory** | RAM | 2GB |
| | Flash | 512MB |
| **Edge Storage** | Micro SD/SDHC/SDXC | Max. 1TB x 1slot |

## Environmental & Electrical

| | | |
|---|---|---|
| **Operating Condition** | Temperature | -40°C~+60°C(-40°F~+140°F) |
| | Humidity | 0~95% RH(non-condensing) |
| **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. 10.8W, typical 9W |
| | 12VDC | Max. 9.4W, typical 7.7W |

## Mechanical

| | |
|---|---|
| **Color** | White |
| **Material** | Aluminum, PC(Polycarbonate) |
| **RAL Code** | RAL9003 |

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## Mechanical

| | |
|---|---|
| **Product Dimensions** | ø93.8x233.5mm(ø3.69x9.19") |
| **Product Weight** | 1700g(3.75lb) |
| **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 |
| **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 250 type 4X |

## DRI (Johnson's Criteria)

| | | |
|---|---|---|
| **Detection** | Person(1.67PPM) | 200m(655ft) |
| | Vehicle(0.65PPM) | 510m(1,673ft) |
| **Recognition** | Person(6.67PPM) | 50m(164ft) |
| | Vehicle(2.61PPM) | 127m(418ft) |
| **Identification** | Person(13.33PPM) | 25m(82ft) |
| | Vehicle(5.22PPM) | 64m(209ft) |

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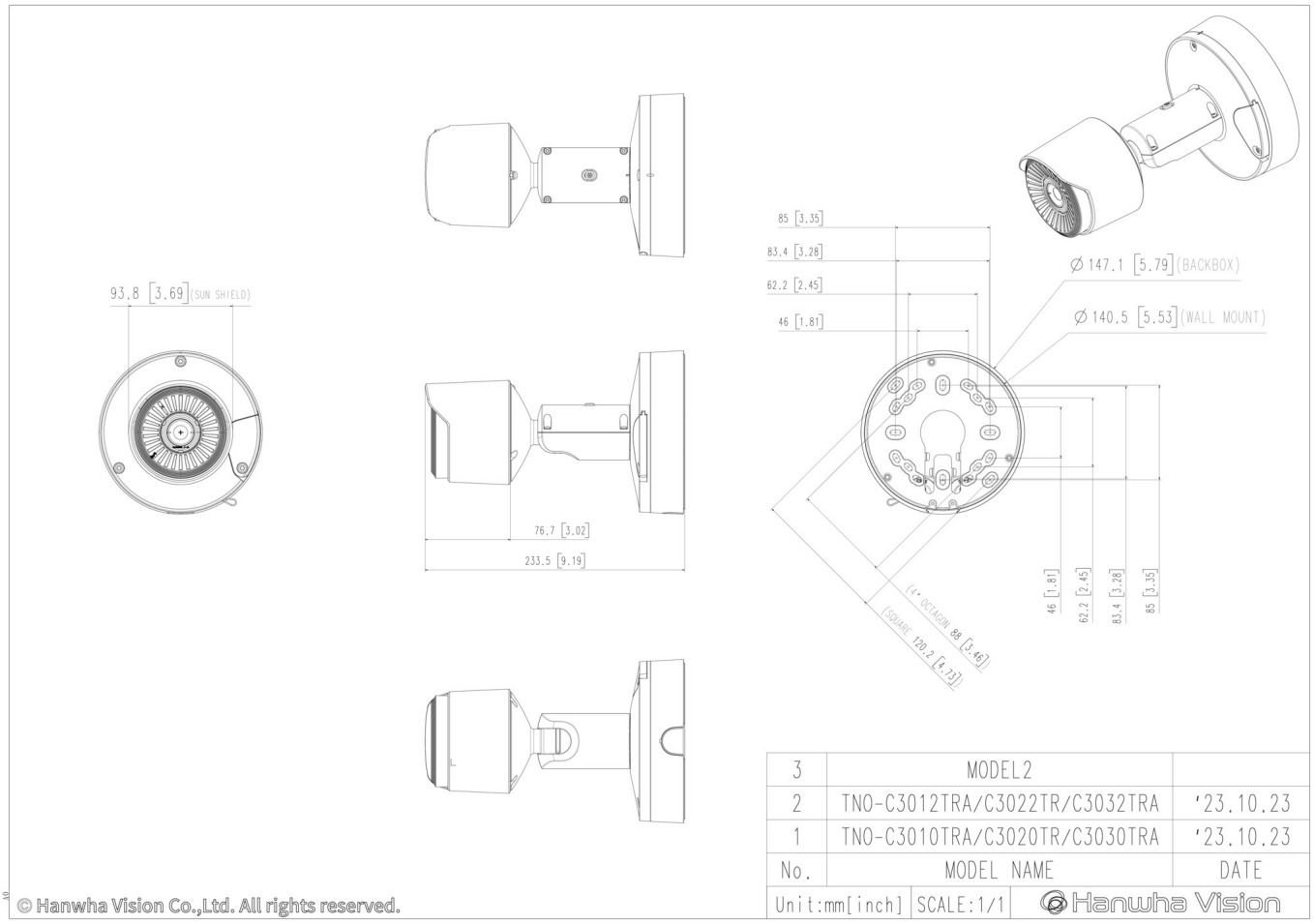
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## CAD

**Unit:** mm [inch]




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