



Network

Thermal

TNO-C3022TRA

QVGA Radiometric AI Thermal Camera



Key Features

- AI based object classification (person, vehicle)
- High performance detector applied (17 μ m, NETD 30mK)
- QVGA resolution (384x288) with wide angle
- Wide temperature monitoring range -40 $^{\circ}$ ~ 550 $^{\circ}$ C (-40 $^{\circ}$ F ~ 1,022 $^{\circ}$ F)
- Smaller and light camera (Φ 147 * 233.5mm, 1.7KG) for easy and simple installation
- Maximum 8fps @ all resolutions (H.265/H.264/MJPEG)

TNO-C3022TRA

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 μ m |
| NETD | | \leq 30mK |
| Pixel Size | | 17 μ m |
| Video Out | | USB: Micro USB Type B |

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 |

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, Notification: e-mail, Recording: SD/SDHC/SDXC or NAS recording at event triggers.Alarm output, Handover: PTZ preset, 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 |
| 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) |

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 Palettes | | 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/H.264: Main/Baseline/High, MJPEG |
| Audio Compression | | 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 |
| Smart Codec | | Manual, WiseStream II , WiseStreamIII |
| Bitrate Control | | H.265/H.264: CBR or VBR, MJPEG: VBR |

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, IGMP, 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 |
| 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 | |
| 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) | |

Mechanical

| | |
|-------------------------|--|
| RAL Code | RAL9003 |
| 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 62262 IK10, NEMA 250 type 4X |

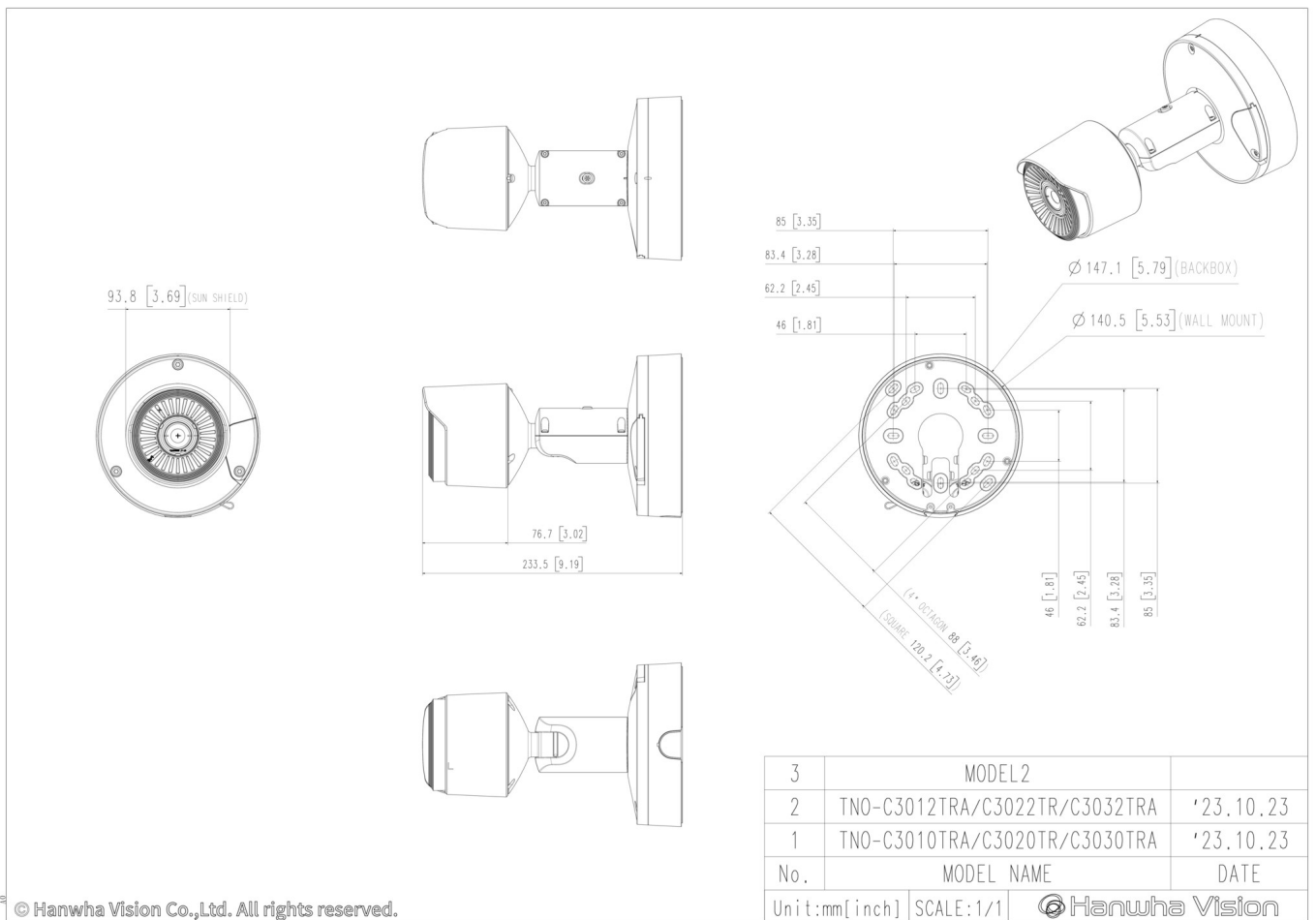
TNO-C3022TRA

QVGA Radiometric AI Thermal Camera



CAD

Unit: mm [inch]



© Hanwha Vision Co.,Ltd. All rights reserved.