



Network

Thermal

## TNO-C3060T

QVGA AI Tele lens Thermal Camera



### Key Features

- High performance thermal sensitivity (NETD 20mK@25°C)
- AI based object classification
- NEMA4X, NEMA-TS2, MIL-STD-810H
- Secure element with FIPS 140-3 level3, CC EAL6+

## TNO-C3060T

QVGA AI Tele lens Thermal Camera



### Specifications

| Video                         |             |                                                                             |
|-------------------------------|-------------|-----------------------------------------------------------------------------|
| Imaging Device                | Type        | Uncooled micro bolometer (384x288)                                          |
| Resolution                    |             | 768x576, 384x288                                                            |
| Max. Framerate                | H.265/H.264 | 30fps                                                                       |
|                               | MJPEG       | 30fps                                                                       |
| Spectral Range                |             | 8~14 $\mu$ m                                                                |
| NETD                          |             | $\leq 20\text{mK}@25^{\circ}\text{C}$ , F1.0                                |
| Pixel Size                    |             | 17 $\mu$ m                                                                  |
| Video Out                     |             | USB: Micro USB Type B. Preview and installation ONLY. Requires WiFi dongle. |
| Lens                          |             |                                                                             |
| Focal Length (mm)             |             | 35                                                                          |
| Max Aperture Ratio (F number) | Wide        | 1.0                                                                         |
| Angular Field of View         | Horizontal  | 10.7°                                                                       |
|                               | Vertical    | 8.0°                                                                        |
|                               | Diagonal    | 13.3°                                                                       |
| iFoV                          |             | 0.486 mRad                                                                  |
| Min. Object Distance          |             | 36.1m(118.4ft)                                                              |
| Focus Control                 |             | Fixed                                                                       |
| Lens Type                     |             | Athermalized                                                                |
| 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                                                                                                                                                                                                      |
|                                          | Others         | Support extra alarm I/O via optional I/O box                                                                                                                                                                                  |
| Alarm Triggers                           |                | Analytics, Network disconnect, Alarm input, Time schedule, MQTT subscription                                                                                                                                                  |
| 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,<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                                                                                                     |
| Thumbnail              |                    | BestShot                                                                                                            |
| Analytics Events       | Based on AI Engine | Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Motion detection  |
|                        | Normal             | Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear) |

## Radiometry

|                          |  |                          |
|--------------------------|--|--------------------------|
| Hybrid Palettes          |  | Support                  |
| ROI Condition Monitoring |  | None, 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,<br>G.726: 16kbps,24kbps,32kbps,40kbps,<br>AAC-LC: 48kbps at 16kHz |
| Smart Codec       |                    | Manual, WiseStream II , WiseStreamIII                                                                                         |
| Bitrate Control   |                    | H.265/H.264: CBR or VBR,<br>MJPEG: VBR                                                                                        |
| Streaming         | Unicast            | Up to 20 users                                                                                                                |
|                   | Multicast          | Support                                                                                                                       |
|                   | Multiple Streaming | Up to 10 profiles                                                                                                             |

## Network

|                                   |        |                                                                                                                                                                                                                                     |
|-----------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protocol                          |        | IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SFTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, CDP, SRTP(TCP, UDP Unicast), MQTT, Syslog |
| 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, 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                       |
| Security Certificate   | Secure element(FIPS 140-3 level3, CC EAL6+)                             |

## 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                                           |
| RAL Code                | RAL9003                                            |
| Product Dimensions      | ø107.3x275mm(ø4.22x10.83")                         |
| Product Weight          | 2370g(5.22lb)                                      |
| Compatible Conduit Hole | Support conduit compatibility via optional adaptor |

## Mechanical

|                     |                                    |
|---------------------|------------------------------------|
| 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 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 507.6, MIL-STD-810H 509.7, MIL-STD-810H 514.8, MIL-STD-810H 516.8 |

## DRI (Johnson's Criteria)

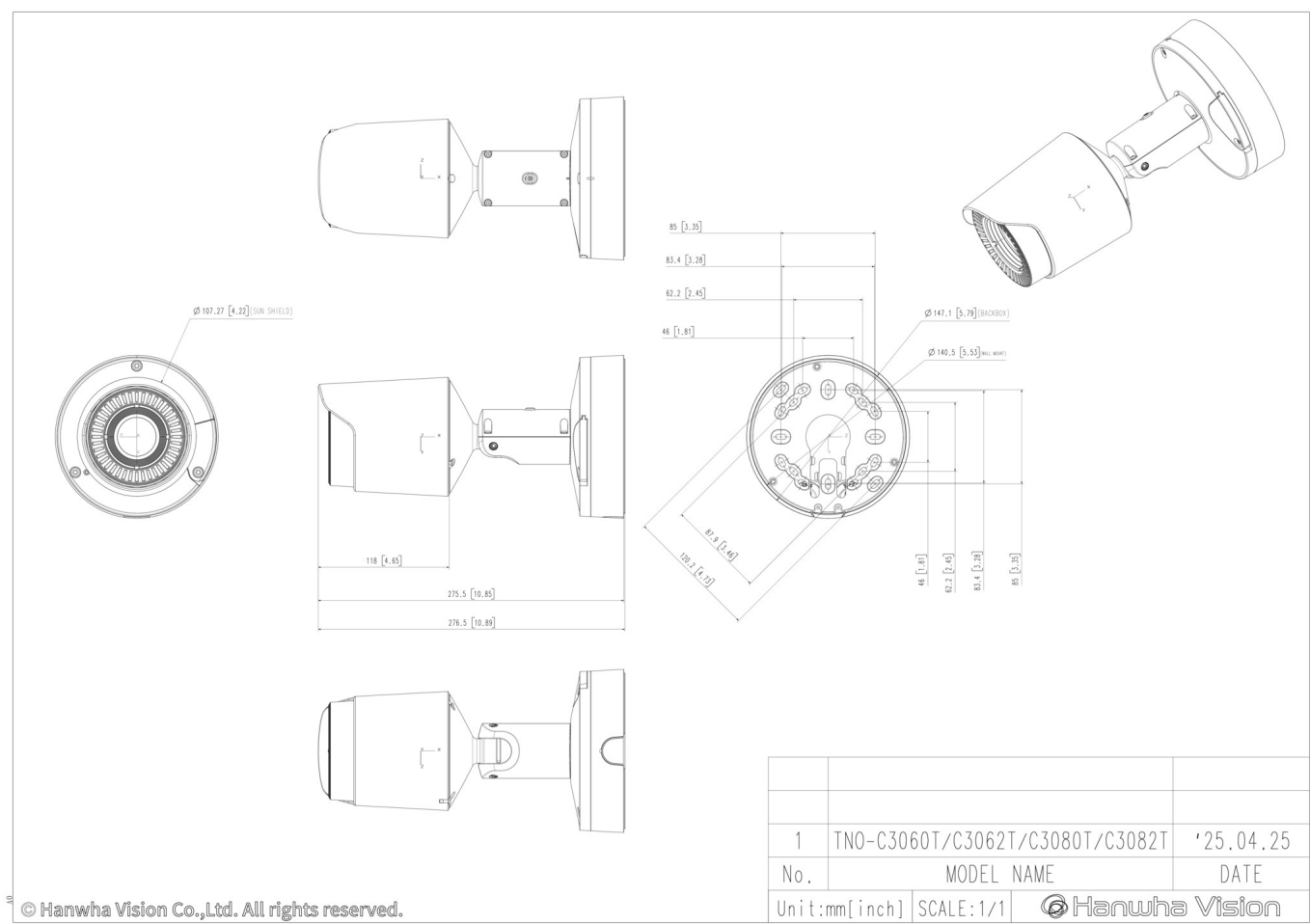
|                |                  |                  |
|----------------|------------------|------------------|
| Detection      | Person(1.67PPM)  | 1,230m(4,036ft)  |
|                | Vehicle(0.65PPM) | 3,144m(10,314ft) |
| Recognition    | Person(6.67PPM)  | 308m(1,009ft)    |
|                | Vehicle(2.61PPM) | 786m(2,578ft)    |
| Identification | Person(13.33PPM) | 154m(504ft)      |
|                | Vehicle(5.22PPM) | 393m(1,289ft)    |

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CAD

Unit: mm [inch]



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## Compatible Devices



SBP-160HWM1



SBP-140CMB



SBP-180CMB



SBP-180CMS



SBP-150CMP



SBP-300CMP



SBP-900CMP



SBP-C15H



SBP-C15NP



SBP-C35H



SBP-C15P



SBP-150CMI



SBP-300CMI



SBP-300CMW1



SBP-900CMW



SBP-300CMTW



SBP-300CMTS



SBP-250WMW



SBP-400WMW



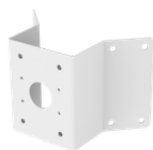
SBP-115PFA



SBP-150PMW



SBD-180PMW



SBP-156KMW



SBP-156LMW1



SBP-050NBW



SBP-150NBW



SBP-060BA



SBP-300WMW



SBP-300WMW1



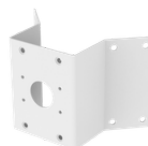
SBP-160WMW1



SBP-300BW1



SBP-300PMW2



SBP-300KMW1



SBP-300LMW



SBP-300NBW