



Network

Bullet

# TNO-C3012TRA

QVGA Radiometric AI Thermal Camera



## Key Features

- AI based object classification (person, vehicle)
- High performance detector applied (17 $\mu$ m, NETD 30mK)
- QVGA resolution (384x288) with wide angle (FoV 90°)
- Wide temperature monitoring range -40°~ 550°C (-40°F ~ 1,022°F)
- Smaller and light camera (Φ147 \* 233.5mm, 1.7KG) for easy and simple installation
- Maximum 8fps @ all resolutions (H.265/H.264/MJPEG)

# TNO-C3012TRA

QVGA Radiometric AI Thermal Camera



## Specifications

### Video

|                |                                                   |
|----------------|---------------------------------------------------|
| Imaging Device | Uncooled micro bolometer (Spectral range: 8~14μm) |
| Resolution     | 768x576, 384x288(original)                        |
| Max. Framerate | H.265/H.264/MJPEG: Max. 8fps                      |
| NETD           | <30mK                                             |
| Pixel Size     | 17μm                                              |
| Video Out      | USB: Micro USB Type B, 768x576 for installation   |

### Lens

|                           |                                                    |
|---------------------------|----------------------------------------------------|
| Focal Length (Zoom Ratio) | 4.4mm fixed focal                                  |
| Max. Aperture Ratio       | F1.0                                               |
| Angular Field of View     | H: 90° / V: 65.3° / D: 118.6°<br>(iFoV: 3.9 mRad ) |
| Min. Object Distance      | 0.6m                                               |
| Focus Control             | fixed                                              |

### Pan / Tilt / Rotate

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

### Operational

|                       |                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Camera Title          | Displayed up to 85 characters                                                                                                                                                                                                                                                                                                                                  |
| Motion Detection      | 8ea, 8point polygonal zones                                                                                                                                                                                                                                                                                                                                    |
| Privacy Masking       | 6ea, Rectangle zones<br>- color : Grey, Black, White                                                                                                                                                                                                                                                                                                           |
| Video Rotation        | Flip, Mirror, Hallway view(90-/270-)                                                                                                                                                                                                                                                                                                                           |
| Analytics             | Classified object type: Person/Vehicle<br>Support BestShot<br>Analytics events based on AI engine<br>- WiseMD, Object detection, Virtual line*(Crossing/Direction), Virtual area*(Loitering/Intrusion/Enter/Exit)<br>Analytics events<br>- Motion detection, Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear) |
| Business Intelligence | Support (Temperature data)                                                                                                                                                                                                                                                                                                                                     |
| Serial Interface      | RS-485                                                                                                                                                                                                                                                                                                                                                         |
| Alarm I/O             | 2 configurable I/O ports                                                                                                                                                                                                                                                                                                                                       |
| Alarm Triggers        | Analytics, Network disconnect, Alarm input, Time schedule, MQTT subscription                                                                                                                                                                                                                                                                                   |
| Alarm Events          | When alarm trigger occurred<br>- File upload(image): e-mail/FTP<br>- Notification: e-mail<br>- Recording: SD/SDHC/SDXC or NAS recording at event triggers<br>- Alarm output<br>- Handover: PTZ preset<br>- MQTT: publication                                                                                                                                   |

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.

|                |                                                                                  |
|----------------|----------------------------------------------------------------------------------|
| Audio In       | Selectable(mic in/line in)                                                       |
| Audio Out      | Line out                                                                         |
| Color Palettes | Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom, Hybrid palettes |

#### Radiometry

|                          |                                                                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Detect Range | -40°C~550°C(-40°F~1022°F)                                                                                                                                       |
| Temperature Accuracy     | below 150°C: up to $\pm 2^{\circ}\text{C}$<br>Above 150°C: up to $\pm 15\%$<br>* based on measurements in a room temperature environment. Auto Temperature mode |
| Temperature Detection    | 10 Polygonal ROI zones, whole FoV area                                                                                                                          |
| Additional               | Hybrid palettes, Spot temperature reading<br>(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<br>G.726(ADPCM) 8KHz, G.711 8KHz<br>G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps<br>AAC-LC: 48Kbps at 16KHz                                                                                    |
| Smart Codec                       | Manual(5ea area), WiseStream II, WiseStreamIII(Based on AI engine)                                                                                                                                                     |
| Bitrate Control                   | H.264/H.265: CBR or VBR<br>MJPEG: VBR                                                                                                                                                                                  |
| Streaming                         | Unicast(20 users) / Multicast<br>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 Profile S/G/T/M<br>SUNAPI(HTTP API)<br>Wisenet open platform                                                                                                                                                     |

#### Security

|                        |                                                                   |
|------------------------|-------------------------------------------------------------------|
| OS / Firmware Protect  | Secure boot, Signed firmware, Firmware encryption                 |
| User authentication    | Digest Authentication, Prevent brute-force attack                 |
| Network authentication | 802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)       |
| Secure Communication   | HTTPS, SRTP, WSS(Websocket secure)                                |
| Access Control         | Access control based on IP address                                |
| Data Protect           | Authentication information encryption, ZIP compression encryption |
| Audit                  | User Access/System/Event log management                           |
| Device ID              | Device Certificate(Hanwha Private Root CA)                        |
| Secure Storage         | TPM(Trusted platform module), SDcard partition encrypt            |
| Security Certificate   | TPM with FIPS 140-2 level 2                                       |

#### General

|                  |                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Webpage Language | English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek |
| Edge Storage     | Micro SD/SDHC/SDXC 1slot Max. 1TB                                                                                                          |
| Memory           | 2GB RAM, 512MB Flash                                                                                                                       |

#### Environmental & Electrical

|                                  |                                                      |
|----------------------------------|------------------------------------------------------|
| Operating Temperature / Humidity | -40°C~+60°C(-40°F~+140°F) / 0~95% RH(non-condensing) |
| Storage Temperature / Humidity   | -50°C~+60°C(-58°F~+140°F) / Less than 95% RH         |

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.

|                   |                                                             |
|-------------------|-------------------------------------------------------------|
| Certification     | IP66, IK10, NEMA4X                                          |
| Input Voltage     | PoE(IEEE802.3af, Class3), 12VDC                             |
| Power Consumption | PoE: Max 10.8W, typical 9W<br>12VDC: Max 9.4W, typical 7.7W |

#### Mechanical

|                                   |                                                                                              |
|-----------------------------------|----------------------------------------------------------------------------------------------|
| Color / Material                  | White / Aluminum + PC                                                                        |
| RAL Code                          | RAL9003                                                                                      |
| Product Dimensions / Weight       | ø93.8x233.5mm(ø3.69x9.19"), 1700g(3.75 lb)                                                   |
| Compatible Conduit hole / Gangbox | Conduit hole : SBP-060BA(Sold seperately)<br>Gangbox : single, double, 4" octagon, 4" square |
| Backbox                           | Included                                                                                     |
| Pole Mount                        | SBD-180PMW, SBP-300PMW2                                                                      |
| Corner Mount                      | SBP-300KMW1                                                                                  |
| Cabinet                           | SBP-300NBW                                                                                   |
| Conduit Adaptor                   | SBP-060BA                                                                                    |

#### Certifications & Standards

|             |                                                                                                                                                                                                                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC         | EN 55032:2015/A11:2020<br>EN 50130-4:2011/A1:2014<br>EN 61000-3-2:2014<br>EN 61000-3-3:2013<br>FCC - 47 CFR Part 15, Subpart B Class A<br>FCC - IC Regulation ICES 003 Issue 7<br>RCM - EN IEC 63000:2018 Class A<br>VCCI - EN IEC 63000:2018 Class A<br>KS - KS C 9832:2023 Class A<br>KS - KS C 9835:2019 Class A |
| Safety      | UL/CSA 62368-1                                                                                                                                                                                                                                                                                                      |
| Environment | ROHS - EN IEC 63000:2018<br>IK10 - KS C IEC 62262: 2005<br>IP66 - IEC 60529:1989 +A1:1999+A2:2013<br>NEMA4X - NEMA 250-2014                                                                                                                                                                                         |

TNO-C3012TRA

# TNO-C3012TRA

QVGA Radiometric AI Thermal Camera



CAD

Unit:mm [inch]

