



Network

Thermal

## TNO-C3052T

QVGA AI Tele lens Thermal Camera



### Key Features

- QVGA resolution (384x288, 17 $\mu$ m)
- 19mm Tele lens option
- High performance thermal sensitivity (NETD 20mK@25°C)
- AI based object classification (person, vehicle)
- Max. 8fps (H.265/H.264/MJPEG)
- IP66/67, IK10, NEMA4X, NEMA-TS2, MIL-STD-810H
- Secure element with FIPS 140-3 level3, CC EAL6+

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### 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 $\mu$ m
NETD		$\leq 20\text{mK}@25^{\circ}\text{C}, \text{F}1.0$
Pixel Size		17 $\mu$ m
Video Out		USB: Micro USB Type B

#### Lens

Focal Length (mm)		19
Max Aperture Ratio (F number)	Wide	1.0
Angular Field of View	Horizontal	19.3 $^{\circ}$
	Vertical	14.6 $^{\circ}$
	Diagonal	23.9 $^{\circ}$
iFoV		0.895 mRad
Min. Object Distance		10.6m(34.8ft)
Focus Control		Fixed
Lens Type		Athermalized

#### Pan / Tilt / Rotate

Pan / Tilt / Rotate Range	Pan	0 $^{\circ}$ ~350 $^{\circ}$
	Tilt	0 $^{\circ}$ ~90 $^{\circ}$
	Rotate	0 $^{\circ}$ ~350 $^{\circ}$

#### 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, File upload(video clip): FTP/SFTP, 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), 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, 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
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	ø93.8x233.5mm(ø3.69x9.19")
Product Weight	1730g(3.81lb)
Compatible Conduit Hole	Support conduit compatibility via optional adaptor

## Mechanical

Compatible Gang Box	Single, Double, 4" Octagon, Square
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## 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

## DORI (EN62676-4 standard)

Detect (25PPM/ 8PPF)	Wide	678m(2,222.22ft)
Recognize (125PPM/ 38PPF)	Wide	169m(555.56ft)
Identify (250PPM/ 76PPF)	Wide	85m(277.78ft)

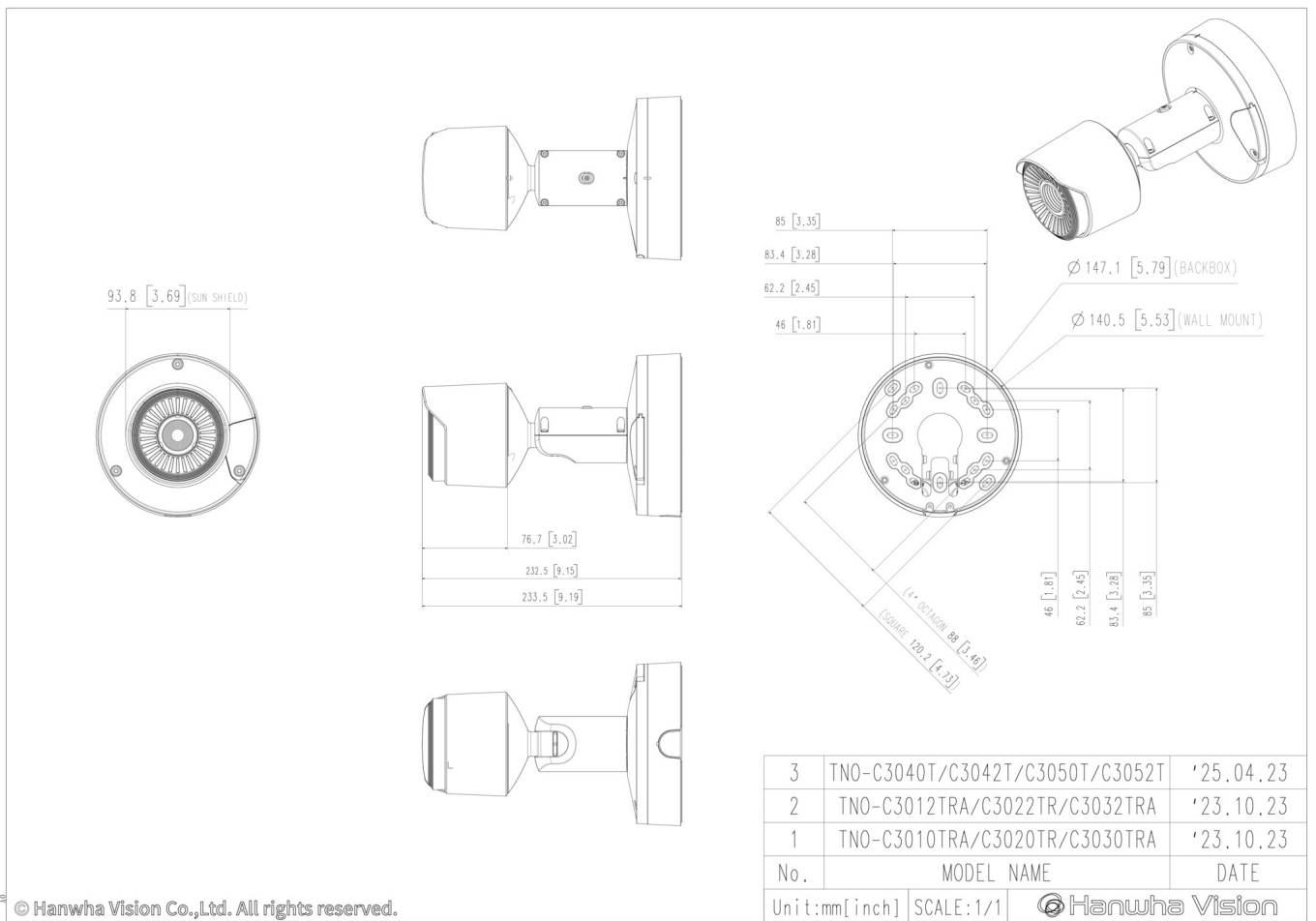
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### CAD

Unit: mm [inch]



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