



Network

Thermal

# TNO-C3010TRA

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 ( $\Phi$ 147 \* 233.5mm, 1.7KG) for easy and simple installation
- Maximum 30fps @ all resolutions (H.265/H.264/MJPEG)

## TNO-C3010TRA

QVGA Radiometric AI 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		$\leq$ 30mK
Pixel Size		17 $\mu$ m
Video Out		USB: Micro USB Type B. Preview and installation ONLY. Requires WiFi dongle.

#### Lens

Focal Length (mm)		4.4
Max Aperture Ratio (F number)	Wide	1.0
Angular Field of View	Horizontal	90°
	Vertical	65.3°
	Diagonal	118.6°
iFoV		3.9 mRad
Min. Object Distance		0.6m(1.97ft)
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), Motion detection
	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

## 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

## 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)	115m(378ft)
	Vehicle(0.65PPM)	294m(966ft)
Recognition	Person(6.67PPM)	29m(94ft)
	Vehicle(2.61PPM)	74m(241ft)
Identification	Person(13.33PPM)	14m(47ft)
	Vehicle(5.22PPM)	37m(121ft)

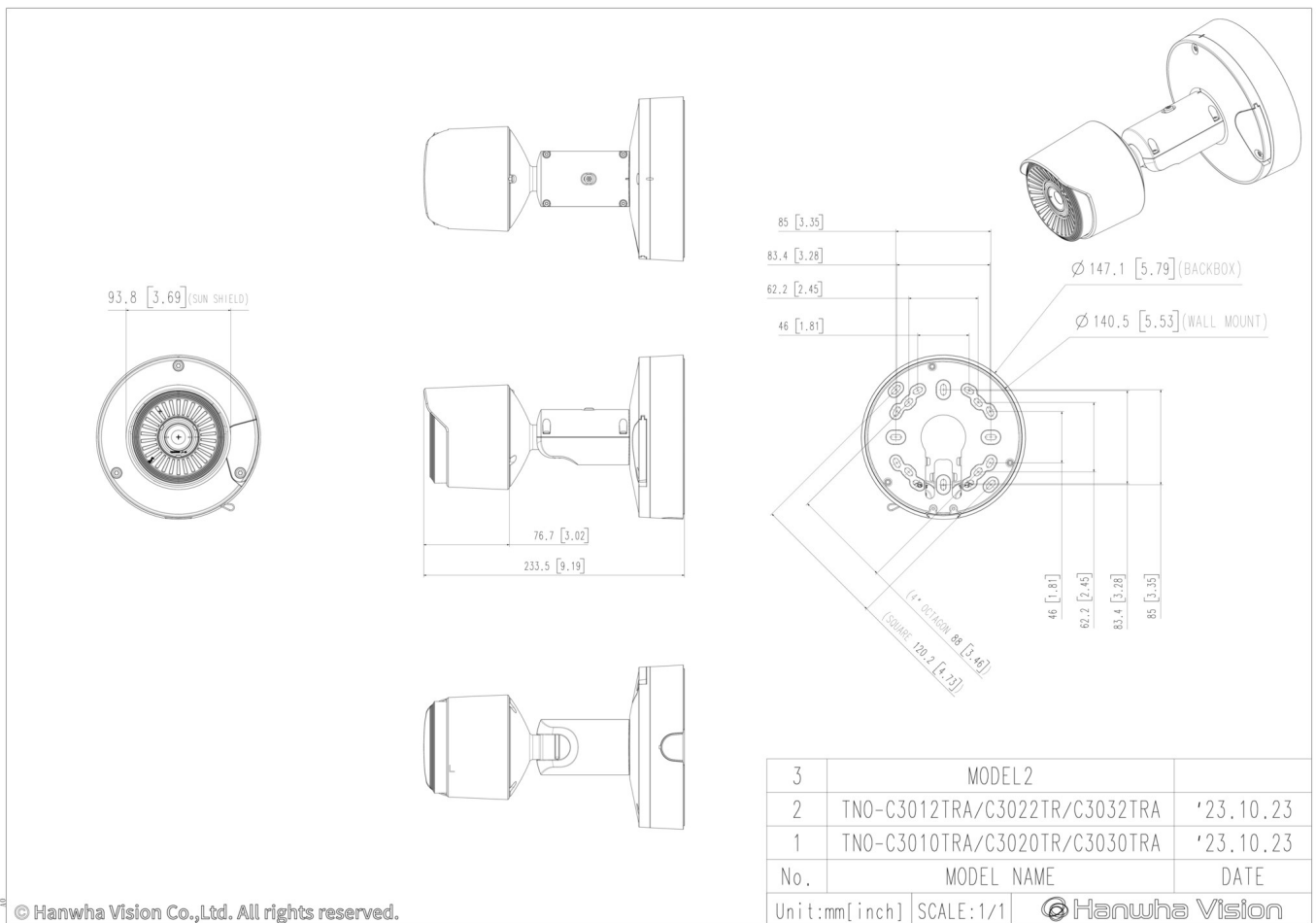
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### CAD

Unit: mm [inch]



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