



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)

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Specifications

Video

Imaging Device	Type	Uncooled micro bolometer (384x288)
Resolution		384x288, 768x576
Max. Framerate	H.265/H.264	8fps
	MJPEG	8fps
Spectral Range		8~14 μ m
NETD		<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	White, Gray, Black
Video Rotation		Mirror, Flip, Hallway view(90°/270°)
Serial Interface		RS-485
Alarm Interface	In/Out	2 configurable I/O ports
Alarm Triggers		Network disconnect, Analytics, Time schedule, Alarm input, MQTT subscription
Alarm Events When Alarm Trigger Occurred		File upload(image): e-mail/FTP, Handover: PTZ preset, Recording: SD/SDHC/SDXC or NAS recording at event triggers, Notification: e-mail, MQTT: publication, Alarm output
Audio In		Selectable(mic in/line in)
Audio Out		Line out
Color Palettes		Rainbow, Rainbow2, Sepia, Red, Whitehot, Custom, Blackhot, Iron

Analytics

Classified Object Type		Vehicle, Person
Thumbnail		BestShot
Analytics Events	Based on AI Engine	Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Object detection
	Normal	Shock detection, Virtual area(Appear/Disappear), Sound classification, Tampering, Motion detection, Audio detection

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, Decrease, Increase, Below

Network

Ethernet		Metal shielded RJ-45(10/100/1000BASE-T)
Video Compression		H.265/H.264: Main/Baseline/High, MJPEG
Audio Compression		AAC-LC: 48Kbps at 16KHz, G.726(ADPCM) 8KHz, G.711 8KHz, G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps, G.711 u-law /G.726 selectable
Smart Codec		WiseStreamIII, WiseStream II , Manual
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		SSL/TLS, RTP(UDP), IPv4, HTTPS, FTP, NTP, TCP/IP, ARP, DHCP, RTCP, IPv6, UDP/IP, Bonjour, DNS, SNMPv1/v2c/v3(MIB-2), RTP(TCP), QoS, SMTP, DDNS, IGMP, HTTP, UPnP, CDP, LLDP, MQTT, RTSP, ICMP, SRTP(TCP, UDP Unicast)
Application Programming Interface	ONVIF	M, T, G, S
	Others	SUNAPI(HTTP API), Hanwha Vision Open Platform
Direct Cloud Connection		Support

Security

OS / Firmware Protect	Signed firmware, Secure boot, Encrypted firmware
User authentication	Prevent brute-force attack, Digest authentication
Network authentication	IEEE 802.1X(EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2)
Secure Communication	HTTPS, SRTP, WSS(WebSocket Secure)
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	SDcard partition encrypt(AES-256), TPM(Trusted platform module)
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	PC(Polycarbonate), Aluminum
RAL Code	RAL9003
Product Dimensions	ø93.8x233.5mm(ø3.69x9.19")
Product Weight	1700g(3.75lb)

Mechanical

Compatible Conduit Hole	Support conduit compatibility via optional adaptor
Compatible Gang Box	Square, 4" Octagon, Double, Single

Certifications & Standards

EMC	VCCI CISPR 32 Class A, FCC 47 CFR 15 Subpart B Class A, RCM AS-NZS CISPR 32 Class A, CE/UKCA - EN55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3, IC Regulation ICES-003 Issue 7 Class A, KS C 9832 Class A, KS C 9835
Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1
Environment	NEMA 250 type 4X, IEC/EN 63000, IEC 62262 IK10, IEC 60529 IP66

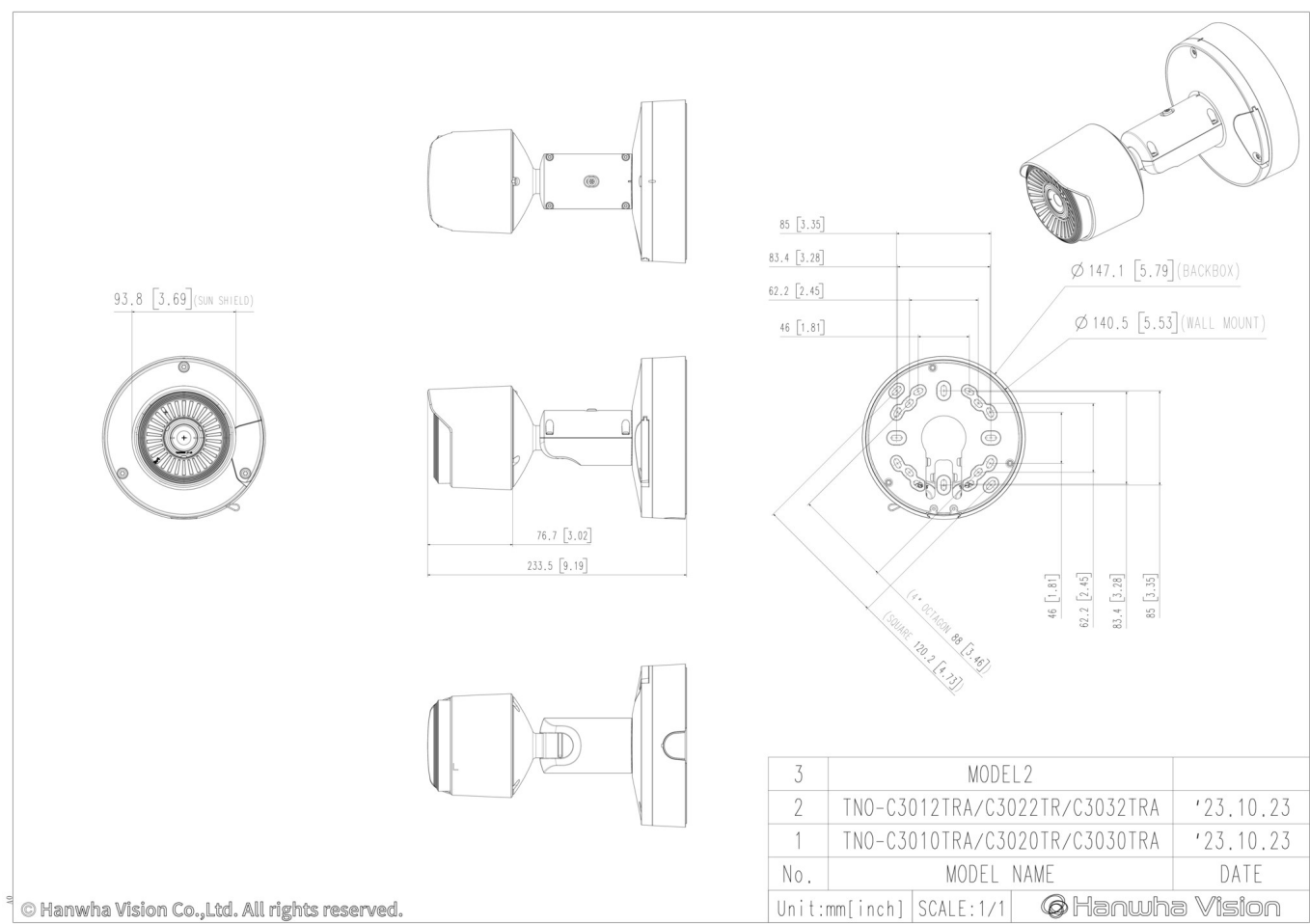
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CAD

Unit: mm [inch]



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