



Network

Thermal

TNM-C2712TDR

Early Fire Detection Bi-spectrum Thermal Camera



Key Features

- QVGA Thermal Resolution
- 3MP Visible Resolution
- -10°C~450°C Temperature Detection
- Early Fire Detection Flame, Temperature
- Bi-spectrum Multi-Channel: QQVGA Thermal & 3MP Visible Sensor
- Max. Framerate: Visible 30fps, Thermal 8fps
- Angular Field of View : Thermal H: 95° / V: 69° / D: 119° & Visible H: 100° / V: 73° / D: 129°
- Early fire detection (Analytics events based on AI engine)
- Temperature detect range (-10°C~450°C), Temperature difference detection
- IP66/IP67, IK09 (except lenses in front)
- PoE: Max 10.8W, typical 6.2W

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Thermal Camera



Specifications

Video		Ch 1	Ch 2
Imaging Device	Size	1/2.8"	
	Type	CMOS	Uncooled micro bolometer (160x120)
Resolution		2048x1536, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240	640x480, 320x240
Max. Framerate	H.265/H.264	30fps/25fps(60Hz/50Hz)	8fps
	MJPEG	5fps	5fps
Spectral Range			8~14 μ m
NETD			$\leq$ 50mK
Pixel Size			12 μ m
Min. Illumination (Lux)	Color(1/30sec, 30IRE)	0.06	
	BW(1/30sec, 30IRE)	0.06	

Lens

Focal Length (mm)		3.06	1.2
Max Aperture Ratio (F number)	Wide	F1.6	F1.1
Angular Field of View	Horizontal	100	95
	Vertical	73	69
	Diagonal	129	119
Min. Object Distance		1.1m(3.6ft)	0.15m(0.49ft)
Focus Control		Fixed	Fixed

Pan / Tilt / Rotate

Pan / Tilt / Rotate Range	Pan	0°~360°
	Tilt	0°~70°
	Rotate	0°~360°

Operational

Day & Night	Auto(Electrical)
Backlight Compensation	BLC, WDR, SSDR

Operational

Wide Dynamic Range (dB)		120	
Digital Noise Reduction		SSNR V	
Motion Detection	Quantity	8ea	8ea
	Shape	8point Polygonal zones	8point Polygonal zones
Privacy Masking	Quantity	6ea	6ea
	Shape	Rectangular zones	Rectangular zones
	Color / Option	Gray, Black, White	Gray, Black, White
Gain Control		Low, Middle, High	
White Balance		ATW, AWC, Manual, Indoor, Outdoor	
LDC		Support	
Electronic Shutter	Mode	Minimum, Maximum, Anti flicker	
	Speed Range	1/5~1/12,000sec	
Video Rotation		Flip, Mirror	Flip, Mirror
Alarm Interface	In/Out	Input 1ea, Output 1ea	
Alarm Triggers		Analytics, Network disconnect, Alarm input, 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, send message by HTTP/HTTPS/TCP, Audio clip playback, MQTT: publication, Light alarm	
Audio In		Selectable(mic in/line in)	
Audio Out		Line out	
Color Palettes			Whitehot, Sepia, Red, Custom

Radiometry

Temperature Detect Range		-10°C~450°C
Temperature Accuracy		Greater of $\pm 10^{\circ}\text{C}$ or 10%
Temperature Detection ROI Zones	Quantity	2ea
	Shape / Option	Rectangle
Spot Temperature Reading		Support
ROI Condition Monitoring		Above, Below, Increase, Decrease

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

Security

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)

General

Memory	RAM	2GB
	Flash	512MB
Edge Storage	Micro SD/SDHC/SDXC	Max. 512GB x 1slot

Environmental & Electrical

Operating Condition	Temperature	-30°C~+55°C(-22°F~+131°F)
	Humidity	0~95% RH(non-condensing)
	Others	Start up should be done at above -10°C
Storage Condition	Temperature	-40°C~+60°C(-40°F~+140°F)
	Humidity	0~95% RH(non-condensing)
Input Voltage		PoE(IEEE802.3af, Class3)
Power Consumption	PoE	Max 10.8W, typical 6.2W

Mechanical

Color	White
Material	Aluminum
RAL Code	RAL9003
Product Dimensions	Ø110x97mm(ø4.33x3.82")
Product Weight	650g(1.43lb)
Compatible Gang Box	Single

Certifications & Standards

EMC	FCC 47 CFR 15 Subpart B Class A, ICES-3(A)/NMB-3(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
Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1, IEC 62471
Environment	IEC/EN 63000, IEC 60529 IP66, IEC 60529 IP67, IEC 62262 IK09

DORI (EN62676-4 standard)

Detect (25PPM/ 8PPF)	Wide	34.4m(112.8ft)	
Observe (63PPM/ 19PPF)	Wide	13.7m(44.9ft)	
Recognize (125PPM/ 38PPF)	Wide	6.9m(22.6ft)	

DORI (EN62676-4 standard)

Identify (250PPM/ 76PPF)	Wide	3.4m(11.1ft)	
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Thermal Detection Range

Temperature Detection		7m(22.96ft)
Early Fire Detection		7m(22.96ft)

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CAD

Unit: mm [inch]

