

SN-TPT4233ZZ-M

Thermal & Optical Bi-spectrum PTZ Camera



Key Features

- 400 × 300 thermal resolution, 17 μm VOx UFPA, NETD ≤ 40 mK
- Thermal lens options: 25/50/75/100 mm; Visible lens: 37× optical zoom
- Supports human/vehicle detection; smoke & flame, and fire point detection
- Intelligent analytics: Intrusion, single/double line crossing, loitering, wrong-way, enter/leave area detection, smart motion detection, and people counting
- Supports 3 temperature measurement rule types: spot, line, and area
- Temperature measurement range: 20°C to 150°C, accuracy: ±2°C / ±2%
- NDAA Compliance, IP66-rated protection

Specifications

Camera		
	Thermal	Visible
Image Sensor	Vanadium Oxide Uncooled Focal Plane Arrays	1/1.8" STARVIS CMOS
Max Resolution	Sensor is 400×300, Image can be scaled up to 704×576	4MP, 2592(H) × 1520(V)
Pixel Pitch	17 μm	N/A
Spectral Range	8 to 14 μm	N/A
NETD	≤ 40mK	N/A
Shutter Speed	N/A	1/5 to 1/20,000s
Min Illumination	N/A	Color: 0.001 Lux @(F1.5, AGC ON), B/W: 0.0005 Lux @(F1.5, AGC ON), 0 Lux with IR on
Day & Night	N/A	Auto (ICR)
Lens		
	Thermal	Visible
Lens Type	Fixed lens	Motorized zoom lens
Focal Length	25 mm, 50 mm, 75 mm, 100 mm optional	6.8 to 251 mm, 37x optical zoom
Max. Aperture	F1.0	F1.5
Field of View (FOV)	25 mm, H: 15.4°, V: 11.6° 50 mm, H: 7.7°, V: 5.8° 75 mm, H: 5.1°, V: 3.8° 100 mm, H: 3.8°, V: 2.3°	H: 60.7° to 2.33°, V: 36.8° to 1.38°
Focus Control	Motorized focus	Auto / Manual
Intelligent Analytics		
	Thermal	Visible
AI Multi-Target	Supports human/vehicle detection.	Supports human/vehicle detection.
Intelligent Analysis	Intrusion, smart motion detection, single/double line crossing, loitering, wrong-way detection, and enter/leave area. - Supports accurate target classification (human/vehicle)	Intrusion, smart motion detection, single/double line crossing, loitering, wrong-way detection, and enter/leave area. - Supports accurate target classification (human/vehicle)
Smoke and Flame Detection	N/A	Supported
People Counting	Supported	Supported
Fire Spot Detection	Supported	N/A
Video & Audio		
	Thermal	Visible

Resolution	Stream1: D1 (704×576) Stream2: CIF	Stream1: 2592×1520, 2304×1296, 1920×1080, 1280×720 Stream2: D1, VGA, CIF Stream3: VGA, CIF, QVGA
Frame Rate	Up to 25/30fps	Up to 25/30fps
Bit Rate Control	CBR/VBR	CBR/VBR
Bit Rate	Main stream: 100 Kbps to 6 Mbps, Sub stream: 10 Kbps to 1.5 Mbps	Stream1: 200 Kbps to 12 Mbps Stream2: 100 Kbps to 6 Mbps Stream3: 100 Kbps to 3 Mbps
Smart Encoding	Supported	Supported
Audio Compression	G.711 A-law, G.711 μ-law, RAW_PCM	G.711 A-law, G.711 μ-law, RAW_PCM
Audio Bit Rate	64 Kbps (G.711), 128 Kbps (RAW_PCM)	64 Kbps (G.711), 128 Kbps (RAW_PCM)

Image

	Thermal	Visible
Image Adjustment	Brightness, Contrast, Sharpness	Brightness, Saturation, Contrast, Sharpness
Scene Mode	Mirror	Indoor, Outdoor, Mirror
Pseudo-color Setting	Up to 17 colors (White-hot / Black-hot / Rainbow / Iron red / HSV / Bone / Cool / Copper / Fire-hot / Pink / Spring / Summer / Autumn / Winter / Jet / Flame / Rose - Bengal)	N/A
FFC Control	Auto / Manual	N/A
Exposure Mode	N/A	Auto / Manual
White Balance	N/A	Auto / Tungsten / Fluorescent / Daylight / Shadow / Manual
Day/Night Setting	N/A	Auto / Day / Night / Timer
Noise Reduction	2D/3D DNR	2D/3D DNR
Image Enhancement	N/A	HLC, BLC, Defog, WDR
Wide Dynamic Range	N/A	True WDR 120dB
OSD	Up to 8 OSD	Up to 8 OSD
Privacy Masking	Up to 4 areas	Up to 4 areas

Thermal Function

Temperature Range	-20°C to 150°C (-4°F to 302°F)
Accuracy	±2°C / ±2%
Temperature Detection	3 temperature measurement rule types, 20 rules in total, 1 full screen, 19 others (spot, areas, line).
Temperature Alarm	Temperature difference alarm, Threshold alarm, Temperature rise alarm
Temperature Display	Display in the lower left corner; follow the cursor display of the highest temperature, lowest temperature or average temperature
Response Time	≤ 30ms

PTZ

Pan/Tilt Range	Pan: 0° to 360° endless, Tilt: +40° to -75°
Pan Speed	Pan: 0.01° to 60°/s, preset speed: 60°/s
Tilt Speed	Tilt: 0.01° to 30°/s, preset speed: 30°/s
Preset Accuracy	± 0.2°
Preset	400
Track	6 tracks
Scan	8 scans
Tour	12 tours, up to 32 presets per tour
Power-Off Memory	Supported
3D Positioning	Supported
Idle Motion	The time can be set (1-240 minutes), and functions such as preset positions, patrols, scans, and tracks can be run.
Event	
Alarm Triggers	IVS, Motion detection, Alarm input, Network alarm, Disk alarm, Abnormal sound detection
Event Actions	Alarm record, Alarm output, FTP upload, SMTP upload, Audible alarm output
Network	
Protocols	IPv4/IPv6, HTTP/HTTPS, DNS, DDNS, DHCP, PPPoE, RTSP/ RTCP/RTP, TCP/UDP, NTP, ARP, UPnP, FTP, SMTP, QoS, ICMP, IGMP, SMTP, 802.1x, SNMP, Multicast
Application Programming Interface	ONVIF (Profile S/T/G/M), SDK, CGI
Max Concurrent Streams	10 channels
User/Host Level	32+ users, 3 levels: Administrator, Operator, Media user
Web Viewer	<IE11, Chrome, Firefox, Microsoft Edge
Security	
OS / Firmware Protect	Encrypted firmware, Signed firmware
User Authentication	Digest authentication, Prevent brute-force attack
Network Authentication	IEEE 802.1X (EAP-TLS)
Secure Communication	HTTPS, WSS (WebSocket Secure), SRTP
Access Control	IP-based access control, Auto logout
Data Protect	Encryption credentials
Audit	Access / System / Event Log management
Secure Storage	SDcard partition encrypt(AES-256), Secure element
Supply Chain Security	SBOM
Interface	
Network Interface	1 × Ethernet (10/100 Base-T), RJ-45 connector
Audio Interface	2ch input, 2ch output
Alarm Interface	9ch input, 4ch output

Control Interface	1ch RS-485
CVBS Output	1ch BNC (CVBS output for visible)
SD Card Slot	Built-in MicroSD slot, supports up to 512GB * If needed, we recommend purchasing the memory card with the product so it can be pre-installed during production.
Reset Button	Built-in

General

Language	English, Chinese, Traditional Chinese, Polish, Italian, Portuguese, Spanish, Russian, French, Czech, Hungarian, Japanese, Korean. Default: English
Power Supply	36 VDC
Power Consumption	Max 100 W
Operating Temperature	-40°C to 60°C (-40°F to 140°F)
Operating Humidity	0 to 90% RH (non-condensing)
Ingress Protection	IP66
Wiper	Supported
Certifications	CE-EMC - EN 55032, EN IEC 61000-6-3, EN IEC 61000-3-2, EN 61000-3-3, EN 55035, EN 50130-4 FCC 47 CFR Part 15 Subpart B
Material	Metal
Dimensions	293 × 420 × 520 mm (11.54 × 17.13 × 20.47 inch) with 25/50/75 mm lens 333 × 490 × 550 mm (13.11 × 19.29 × 21.65 inch) with 100 mm lens
Net Weight	≤75mm lens: 26 Kg (57.32 lb) 100mm lens: 28 Kg (61.73 lb)

DORI Distance (EN62676-4 standard)

Detect	95 to 3,515 m (311.68 to 11,532.15 ft)
Observe	38 to 1,406 m (124.67 to 4,612.86 ft)
Recognize	19 to 703 m (62.34 to 2,306.43 ft)
Identify	9.5 to 351.5 m (31.17 to 1,153.22 ft)

Thermal DRI Distance

Thermal Lens	25 mm	50 mm	75 mm	100 mm
Detection (Human: 1.8×0.5 m)	735 m (2,411.4 ft)	1,471 m (4,826.1 ft)	2,206 m (7,237.5 ft)	2,941 m (9,649.0 ft)
Detection (Vehicle: 4×1.5 m)	2,255 m (7,398.3 ft)	4,510 m (14,796.6 ft)	6,765 m (22,194.9 ft)	9,020 m (29,593.2 ft)
Recognition (Human: 1.8×0.5 m)	184 m (603.7 ft)	368 m (1,207.4 ft)	551 m (1,807.7 ft)	735 m (2,411.4 ft)
Recognition (Vehicle: 4×1.5 m)	564 m (1,850.4 ft)	1,127 m (3,697.5 ft)	1,691 m (5,547.9 ft)	2,255 m (7,398.3 ft)
Identification (Human: 1.8×0.5 m)	92 m (301.8 ft)	184 m (603.7 ft)	276 m (905.5 ft)	368 m (1,207.4 ft)

Identification (Vehicle: 4×1.5 m)	282 m (925.2 ft)	564 m (1,850.4 ft)	846 m (2,775.6 ft)	1,127 m (3,697.5 ft)
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Note:
Distances are calculated based on Johnson's Criteria.
Detection: Object must be covered by ≥1.5 pixels.
Recognition: Object must be covered by ≥6 pixels.
Identification: Object must be covered by ≥12 pixels.

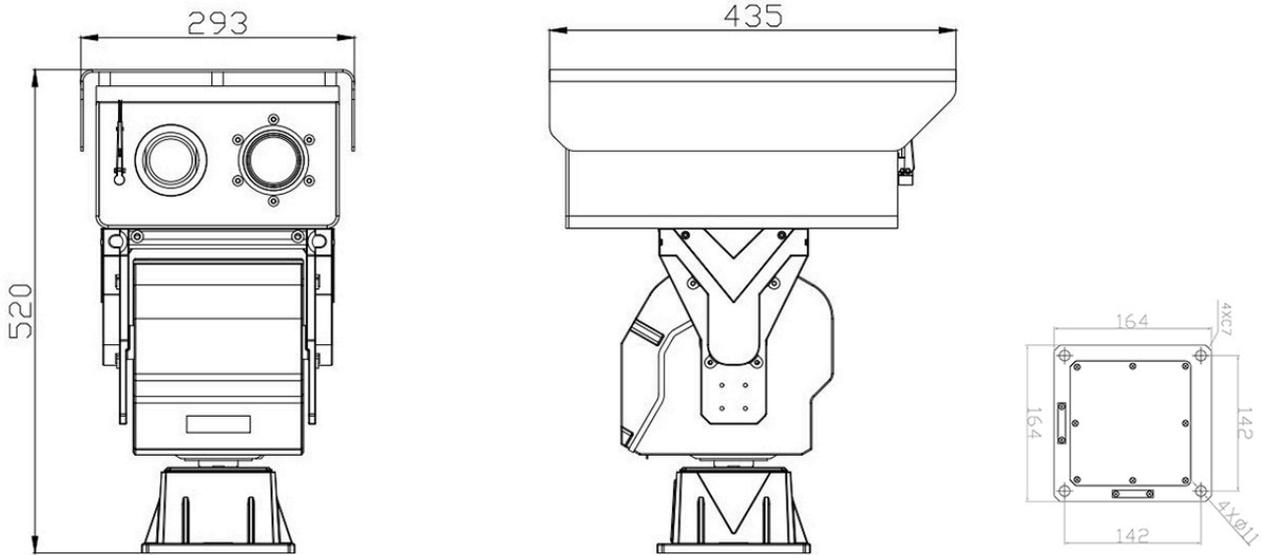
Thermal Smart Detection

Lens	25 mm	50 mm	75 mm	100 mm
Temperature Measurement (1×1 m)	294 m (964.6 ft)	588 m (1,929.1 ft)	882 m (2,893.7 ft)	1,176 m (3,858.3 ft)
Temperature Measurement (0.2×0.2 m)	59 m (193.6 ft)	118 m (387.1 ft)	176 m (577.4 ft)	235 m (771.0 ft)
Fire Detection (1×1 m)	735 m (2,411.2 ft)	1,471 m (4,826.1 ft)	2,206 m (7,237.5 ft)	2,941 m (9,649.0 ft)
Fire Detection (0.2×0.2 m)	147 m (482.3 ft)	294 m (964.6 ft)	441 m (1,446.9 ft)	588 m (1,929.1 ft)

Note:
Values are for reference only. Actual detection range may vary with atmospheric conditions, target size, and installation environment.

Dimensions (mm)

25/50/75 mm thermal lens



100 mm thermal lens

