

SN-TPC2553DRT-F

Bi-spectrum Bullet Network Camera



Key Features

- 256 × 192 VOx uncooled thermal sensor, 12 μm pixel pitch, NETD ≤ 50 mK
- Lens options: 3.5 mm / 7 mm / 10 mm fixed thermal lenses; 4 mm / 8 mm fixed visible lenses
- Supports human and vehicle detection, smoking detection, smoke and flame detection, and fire spot detection
- Intelligent analytics: intrusion, smart motion detection, single-line crossing, double-line crossing, loitering, wrong-way detection, enter area, leave area, and people counting
- Supports temperature measurement rules: spot, line, and area
- Temperature monitoring and alarms: -20 °C to 150 °C, accuracy: ± 2 °C or $\pm 2\%$
- Built-in speaker and strobe light with sound and light alarm
- Smart IR illumination up to 35 m / 50 m
- Supports alarm I/O, RS-485, and built-in microSD card slot
- NDAA compliant, IP66-rated

Specifications

Camera		
	Thermal	Visible
Image Sensor	VOx uncooled focal plane array	1/2.7" CMOS
Max Resolution	256 × 192 thermal resolution, upscaled output up to 704 × 576	2880(H) × 1620(V)
Pixel Pitch	12 μm	N/A
Spectral Range	8–14 μm	N/A
NETD	≤ 50 mK	N/A
Shutter Speed	N/A	1/5 to 1/20,000s
Min Illumination	N/A	Color: 0.05Lux @(F1.6, AGC ON), B/W: 0.005Lux @(F1.6, AGC ON), 0Lux with IR on
Day & Night	N/A	Auto (ICR)
Lens		
	Thermal	Visible
Lens Type	Fixed lens	Fixed lens
Focal Length	3.5 mm / 7 mm / 10 mm (optional)	4 mm / 8 mm (optional)
Max. Aperture	F1.0	F1.6 / F2.0
Field of View (FOV)	3.5 mm: H: 48°, V: 36° 7 mm: H: 24°, V: 18° 10 mm: H: 17°, V: 13°	4 mm: H: 92°, V: 46° 8 mm: H: 40°, V: 20°
Focus Control	Focus-free	Fixed
Illuminator		
Type	IR	
IR wavelength	850 nm	
Distance	4 mm: up to 35 m (114.83 ft) 8 mm: up to 50 m (164.04 ft)	
Control	Auto / Manual	
Intelligent Analytics		
	Thermal	Visible
AI Multi-Target Detection	Supports human and vehicle detection	Supports human and vehicle detection
Intelligent Analysis	Intrusion, smart motion detection, single-line crossing, double-line crossing, loitering, wrong-way detection, enter area, leave area; supports alarm triggering based on specified target types (human/vehicle)	Intrusion, smart motion detection, single-line crossing, double-line crossing, loitering, wrong-way detection, enter area, leave area; supports alarm triggering based on specified target types (human/vehicle)

Smoke and Flame Detection	N/A	Supported
People Counting	Supported	Supported
Smoking Detection	Supported	N/A
Fire Spot Detection	Supported	N/A

Video & Audio

	Thermal	Visible
Main Stream	D1 (704 × 576)	2880 × 1620, 2560 × 1440, 2304 × 1296, 1920 × 1080, 1280 × 720
Sub Stream	D1, CIF, 256 × 192	D1, VGA
Frame Rate	Up to 25 fps	Up to 25 fps
Bit Rate Control	CBR/VBR	CBR/VBR
Bit Rate	Main Stream: 100 Kbps to 3 Mbps, Sub Stream: 10 Kbps to 3 Mbps	Main Stream: 100 Kbps to 12 Mbps, Sub Stream: 10 Kbps to 6 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, Shutter priority
White Balance	N/A	Auto / Tungsten / Fluorescent / Daylight / Shadow
Day/Night Setting	N/A	Auto / Day mode / Night mode / Timer
Noise Reduction	2D/3D DNR	2D/3D DNR
Image Enhancement	N/A	WDR, HLC, BLC, Defog
Wide Dynamic Range	N/A	True WDR (120 dB)
OSD	Up to 8 OSD	Up to 8 OSD
Privacy Masking	Up to 4 configurable zones	Up to 4 configurable zones

Thermal Function

Temperature Range	-20 °C to 150 °C (-4 °F to 302 °F)
Accuracy	±2 °C or ±2% (whichever is greater)

Temperature Detection	Supports 3 rule types (spot, line, and area); up to 20 rules, including 1 full-screen rule and 19 spot/line/area rules
Temperature Alarm	Temperature difference alarm, temperature threshold alarm, and temperature rise alarm
Temperature Display	Lower-left corner display; cursor-based display of maximum, minimum, and average temperature values
Response Time	≤ 30 ms
Image Fusion	Thermal and optical image fusion
Event	
Alarm Triggers	IVS, temperature anomaly, motion detection, alarm input, network alarm, disk alarm, and abnormal sound detection
Event Actions	Alarm recording, FTP upload, SMTP email notification, alarm output, flashing light alarm, and audible alarm output
Network	
Protocols	IPv4/IPv6, HTTP/HTTPS, DNS, DDNS, DHCP, PPPOE, RTSP/RTP/RTCP, TCP/UDP, NTP, ARP, UPnP, FTP, SMTP, QoS, 802.1x, SNMP, Multicast
Application Programming Interface	ONVIF (Profile S/T/G/M), CGI, SDK
Max Concurrent Streams	10 channels
User/Host Level	32+ users, 3 levels: Administrator, Operator, and Media user
Web Viewer	Chrome, Firefox, Microsoft Edge, IE11 or earlier
Security	
OS / Firmware Protect	Encrypted firmware, Signed firmware
User Authentication	Digest authentication, Brute-force attack protection
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, and event logs
Supply Chain Security	SBOM
Interface	
Network Interface	1 × RJ45 10/100 Mbps Ethernet port
Built-in Speaker	Supported
Audio Interface	1 input (RCA), 1 output (RCA)
Alarm Interface	2 inputs, 2 outputs
RS-485	1 × RS-485
SD Card Slot	Built-in microSD card slot (up to 512 GB)
Reset Button	Supported
General	

Language	English, Chinese, Traditional Chinese, Polish, Italian, Portuguese, Spanish, Russian, French, Czech, Hungarian, Japanese, Korean. Default: English
Power Supply	12 VDC / 24 VDC / PoE (802.3af)
Power Consumption	Max 12 W
Operating Temperature	-40 °C to 60 °C (-40 °F to 140 °F)
Operating Humidity	≤ 95% RH (non-condensing)
Ingress Protection	IP66
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	Aluminum alloy housing; PC components
Dimensions	303 × 95 × 107 mm (11.93 × 3.74 × 4.21 inch)
Net Weight	Approx. 1.38 Kg (3.04 lb) with 3.5mm lens

DORI Distance (EN 62676-4 standard)

Detect	4 mm: 72 m (236.22 ft), 8 mm: 146 m (479 ft)
Observe	4 mm: 28.8 m (94.49 ft), 8 mm: 58.4 m (191.6 ft)
Recognize	4 mm: 14.4 m (47.24 ft), 8 mm: 29.2 m (95.8 ft)
Identify	4 mm: 7.2 m (23.62 ft), 8 mm: 14.6 m (47.9 ft)

Thermal DRI Distance

Thermal Lens	3.5 mm	7 mm	10 mm
Detection (Human: 1.8×0.5 m)	146 m (479.0 ft)	292 m (958.0 ft)	417 m (1,368.1 ft)
Detection (Vehicle: 4×1.5 m)	447 m (1,466.5 ft)	894 m (2933.1 ft)	1,278 m (4,192.9 ft)
Recognition (Human: 1.8×0.5 m)	36 m (118.1 ft)	73 m (239.5 ft)	104 m (341.2 ft)
Recognition (Vehicle: 4×1.5 m)	112 m (367.5 ft)	224 m (734.9 ft)	319 m (1,046.5 ft)
Identification (Human: 1.8×0.5 m)	18 m (59 ft)	36 m (118.1 ft)	52 m (170.6 ft)
Identification (Vehicle: 4×1.5 m)	56 m (183.7 ft)	112 m (367.5 ft)	160 m (524.9 ft)

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

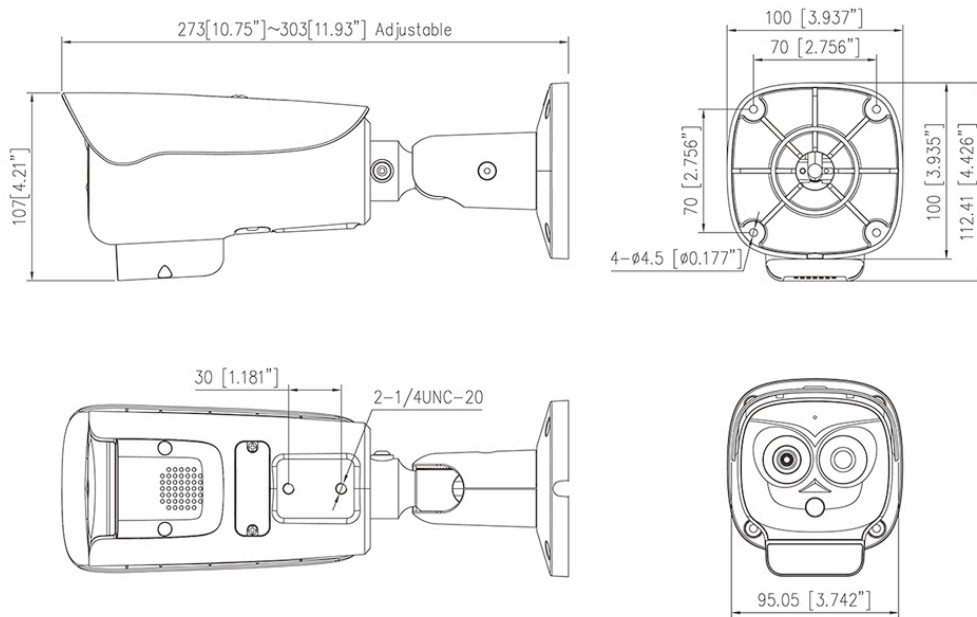
Lens	3.5 mm	7 mm	10 mm
VCA Detection (Human: 1.8×0.5 m)	30 m (98.4 ft)	60 m (196.9 ft)	103 m (337.9 ft)

VCA Detection (Front/Rear of Vehicle: 4×1.5 m)	55 m (180.5 ft)	140 m (459.3 ft)	230 m (754.6 ft)
Temperature Measurement (1×1 m)	58.3 m (191.3 ft)	116.7 m (382.9 ft)	166.7 m (546.9 ft)
Temperature Measurement (0.2×0.2 m)	11.7 m (38.4 ft)	23.3 m (76.4 ft)	33.3 m (109.3 ft)
Fire Detection (0.2×0.2 m)	29.2 m (95.8 ft)	58.3 m (191.3 ft)	83.3 m (273.3 ft)
Smoking Detection	13 m (42.7 ft)	25 m (82 ft)	40 m (131.2 ft)

Note:

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

Dimensions (mm)



Accessories

Optional:



SN-CBK645G
Junction Box



SN-CBK627D
Pole Mount



SN-CBK101
Pole Mount



SN-CBK102
Corner Mount