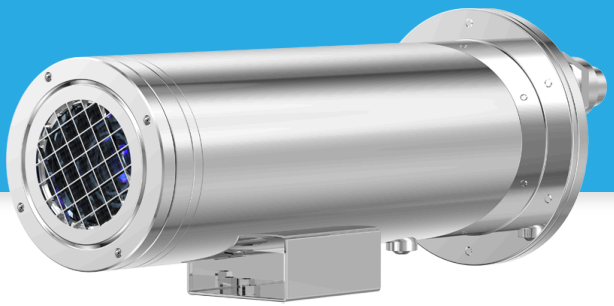
SN-TPH6404DA-F

Explosion-proof Bullet Thermal Camera



Key Features

- 640 × 512 VOx uncooled thermal sensor, 12 µm pixel pitch, NETD ≤ 20 mK
- Optional fixed lenses: 9 / 15 / 25 / 35 / 50 mm
- Supports human, vehicle, and ship detection, as well as smoking detection and fire spot detection
- Intelligent analytics: intrusion, smart motion detection, line crossing, loitering, wrong-way detection, enter area, leave area, and people counting
- Temperature monitoring with exception alarms
- Supports temperature measurement rules: spot, line, and area
- Temperature measurement range: -20 ℃ to 150 ℃, accuracy: ±2 ℃ or ±2%
- Material: 316L Stainless steel
- NDAA compliant, IP68
- ATEX II 2 G Ex db IIC T6 Gb; II 2 D Ex tb IIIC T80℃ Db

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Specifications

Camera	
Image Sensor	VOx uncooled focal plane array
Max Resolution	640 × 512 thermal resolution, upscaled output up to 1280 × 1024
Pixel Pitch	12 µm
Spectral Range	8–14 µm
NETD	≤ 20 mK
Lens	
Lens Type	Fixed lens
Focal Length	9 mm / 15 mm / 25 mm / 35 mm / 50 mm (optional)
Max. Aperture	F1.0
Field of View (FOV)	9 mm: H: 48°, V: 38° 15 mm: H: 32°, V: 26° 25 mm: H: 17°, V: 14° 35 mm: H: 12°, V: 10° 50 mm: H: 8°, V: 7°
Focus Control	Focus-free
Intelligent Analytics	
AI Multi-Target 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)
People Counting	Supported
Smoking Detection	Supported
Fire Spot Detection	Supported
Video & Audio	
Resolution	Stream 1: 1280 × 1024, 1280 × 720, 640 × 512 Stream 2: D1, CIF
Frame Rate	Up to 25 fps
Bit Rate Control	CBR/VBR
Bit Rate	Stream 1: 100 Kbps to 8 Mbps Stream 2: 10 Kbps to 6 Mbps
Smart Encoding	Supported
Image	
Image Adjustment	Brightness, Contrast, Sharpness
Scene Mode	Mirror

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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)
FFC Control	Auto / Manual
Noise Reduction	2D/3D DNR
Privacy Masking	Up to 4 configurable zones
Thermal Function	
Temperature Range	-20 ℃ to 150 ℃ (-4 ℉ to 302 ℉)
Accuracy	±2 ℃ 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
Event	
Alarm Triggers	IVS, temperature anomaly, motion detection, alarm input, network alarm, and disk alarm
Event Actions	Alarm recording, FTP upload, SMTP email notification, and 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
Alarm Interface	1 input, 1 output

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RS-485	1 × RS-485
CVBS Output	Supported
SD Card Slot	Built-in microSD card slot (up to 1 TB) *Memory card must be factory pre-installed and is not field-installable.
Reset Button	Supported

General

Language	English, Chinese, Traditional Chinese, Polish, Italian, Portuguese, Spanish, Russian, French, Czech, Hungarian, Japanese, Korean. Default: English
Power Supply	100 to 240 VAC
Power Consumption	Max 36 W
Operating Temperature	-40 ℃ to 60 ℃ (-40 °F to 140 °F)
Operating Humidity	≤ 95% RH (non-condensing)
Ingress Protection	IP68
Certifications	CE-EMC: EN 55032, EN IEC 61000-6-4, EN IEC 61000-3-2, EN 61000-3-3, EN 55035, EN 50130-4 FCC: 47 CFR Part 15, Subpart B ATEX: Ex II 2GD Ex db IIC T6 Gb / Ex tb IIIC T80°C Db; IECEx: Ex db IIC T6 Gb / Ex tb IIIC T80°C Db
Material	SUS316L
Dimensions	464 × 166 × 171mm (18.27 × 6.54 × 6.73 inch)
Net Weight	Approx. 10 kg (22.05 lb)

Thermal DRI Distance

Thermal Lens	9 mm	15 mm	25 mm	35 mm	50 mm
Detection (Human: 1.8×0.5 m)	375 m (1230.3 ft)	625 m (2,050.5 ft)	1,042 m (3,418.6 ft)	1,458 m (4,783.5 ft)	2,083 m (6,834.0 ft)
Detection (Vehicle: 4×1.5 m)	1,150 m (3,773 ft)	1,917 m (6,289.4 ft)	3,194 m (10,479 ft)	4,472 m (14,672 ft)	6,389 m (20,961.3 ft)
Recognition (Human: 1.8×0.5 m)	94 m (308.4 ft)	156 m (511.8 ft)	260 m (853 ft)	365 m (1,197.5 ft)	521 m (1,709.3 ft)
Recognition (Vehicle: 4×1.5 m)	288 m (944.9 ft)	479 m (1,571.5 ft)	799 m (2,621.4 ft)	1,118 m (3,668 ft)	1,597 m (5,239.5 ft)
Identification (Human: 1.8×0.5 m)	47 m (154.2 ft)	78 m (255.9 ft)	130 m (426.5 ft)	182 m (597.1 ft)	260 m (853 ft)
Identification (Vehicle: 4×1.5 m)	144 m (472.4 ft)	240 m (787.4 ft)	399 m (1,309.1 ft)	559 m (1,834 ft)	799 m (2,621.4 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

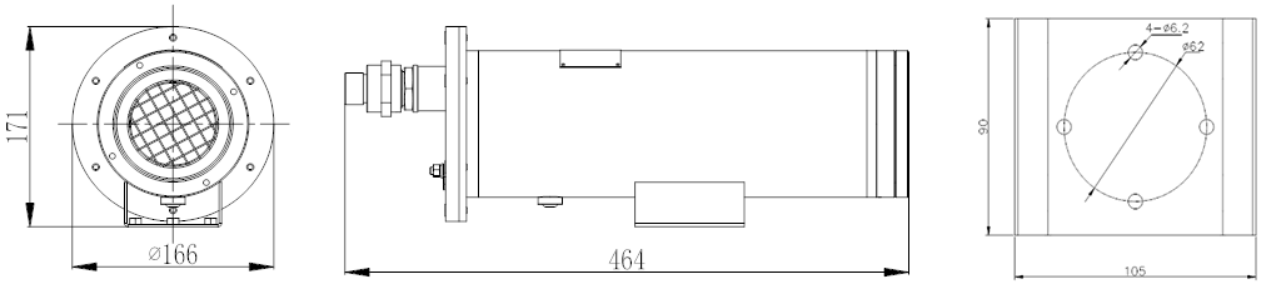
Lens	9 mm	15 mm	25 mm	35 mm	50 mm

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VCA Detection (Human: 1.8×0.5 m)	135 m (442.9 ft)	195 m (639.8 ft)	280 m (918.6 ft)	380 m (1,246.7 ft)	480 m (1,574.8 ft)
Temperature Measurement (1 ×1 m)	150 m (492.1 ft)	250 m (820.2 ft)	417 m (1,368.1 ft)	583 m (1,912.7 ft)	833 m (2,732.9 ft)
Temperature Measurement (0.2×0.2 m)	30 m (98.4 ft)	50 m (164 ft)	83 m (272.3 ft)	117 m (383.9 ft)	167 m (547.9 ft)
Fire Detection (1×1 m)	375 m (1,230.3 ft)	625 m (2,050.5 ft)	1,042 m (3,418.6 ft)	1,458 m (4,783.5 ft)	2,083 m (6,834.0 ft)
Fire Detection (0.2×0.2 m)	75 m (246.1 ft)	125 m (410.1 ft)	208 m (682.4 ft)	292 m (958 ft)	417 m (1,368.1 ft)

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

Dimensions (mm)



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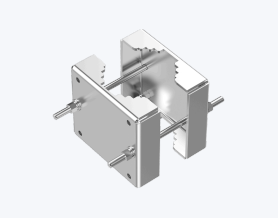
Accessories

Optional:



SN-BK401A-SS

Wall Mount Bracket



SN-BK406-SS

Pole Mount Bracket



SN-BK407-SS

Corner Mount Bracket



SN-BK400-SS

Explosion-proof Junction Box

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