dahua TECHNOLOGY

TPC-SD2221N-TB3F4
Thermal Network Hybrid Speed Dome

· 256x192 VOx uncooled thermal sensor technology
· Athermalized lens (thermal camera), focus-free
· 1080P Full-HD image display
· Support ROI, motion detection, color palettes
· Support temperature measurement
· Support smoking detection
· Smart alarm linkage with white light & loudspeaker
· Built-in 2/1 alarm in/out
· Micro SD memory
· Support Fire detection & alarm

Lite Series	50mK °C	Fire Detection	Analysis	(((•)))	DC12V	IP66

System Overview

Featuring a dual lens, fixed speed dome, this series provides an all-in-one solution for capturing video surveillance for indoor and outdoor applications. Together with Thermal and Visible Technology, the camera is the perfect solution for dark, small area monitoring applications. The series combines one thermal camera for monitoring in total darkness and one visible camera with Smart IR for confirming details.

Functions

Uncooled Vox Technology
Dahua thermal cameras use uncooled Vox sensor technology . Because of small size and better performance, it's cost-effective solution for thermal security.

High Sensitivity
High thermal sensitivity(<50mK) makes cameras capture more image details and temperature difference information.

Fire Detection & Alarm
With built-in Fire detect function, the camera has the ability to detect fire in a long distance. because thermal camera is sensitive to temperature, so the accuracy of fire detection will be higher than visible camera.

Temperature Measurement
Dahua thermal cameras (-T models) provide remote temperature monitoring functionality with the ability to set temperature threshold alarms. Object temperatures can be monitored in daytime or at night,making them ideal for usage in power plant or oil extraction applications where overheating can be dangerous. When the temperature exceeds the set threshold, an alarm is triggered. The temperature range is between -20 °C to 550 °C (-4°F to 1022 °F).

Intelligent Video System (IVS)
With built-in intelligent video analytics, the camera has the ability to detect and analyze moving objects for improved video surveillance.

The camera provides optional standard intelligence at the edge allowin detection of multiple object behaviors such as abandoned or missing objects. IVS also supports Tripwire analytics, allowing the camera to detect when a pre-determined line has been crossed.

Smoking Detection
Smoking detection is a built-in video analytics algorithm that combines with thermal imaging and visible light technology, based on Dahua Deep-learning AI algorithm to automatically detect if there is someone smoking in a detection area and to trigger an alarm.
Value: Dahua thermal camera can provide a real-time monitoring, in the use of AI technology, to automatically detect people's smoking behavior and provide intelligent voice and light warning (Loudspeaker and white light, etc.) in an effort to dissuade or correct, and avoid potential risk and loss

Environmental
With a temperature range of -30 °C to +60 °C (-22 °F to +140 °F), the camera is designed for extreme temperature environments. Subjected and certified to rigorous dust and water immersion tests, the IP67 rating makes it suitable for demanding outdoor applications.

Protection
Supporting ±15% input voltage tolerance, this camera suits even the most unstable conditions for outdoor applications. Its 6KV lightning rating provides protectection against the camera and its structure from the effects of lightning.

Onvif

Technical Specification

General

Structure	Multi-sensor speed dome

Thermal

Detector Type	Vanadium oxide uncooled focal plane detector
Effective Pixels	256x192
Pixel Pitch	12μm
Spectral Range	8μm–14μm
Thermal Sensitivity (NETD)	≤50mK
Focal Length	3.5mm
Field of View	3.5mm: horizontal: 50.6° ; vertical: 37.8°
Focus Mode	Auto; manual
Aperture	F1.0
Detection Distance	3.5mm: vehicle: 389m (1276ft); human: 146m (479ft)
Recognition Distance	3.5mm: vehicle: 97m (318ft); human: 38m (125ft)
Identification Distance	3.5mm: vehicle: 49m (161ft); human: 19m (62ft)
Digital Detail Enhancement (DDE)	Yes
AGC	Auto; manual
Noise Reduction	2D NR; 3D NR
Color Palettes	18 color modes selectable such as Whitehot/Blackhot/Ironrow/Icefire.
Temperature Measurement Range	Low temperature mode: -20°C (-4°F) to +150°C (302°F) High temperature mode: 0°C (34°F) to +550°C (1022°F)
Temperature Accuracy	Max (±5°C, ±5%) Operating temperature: -10°C (14°F) to +50°C (122°F)
Temperature Mode	Spot: 12 Line: 12 Area: 12 Support 12 rules simultaneously

Visible

Image Sensor	1/2.8 inch CMOS
Effective Pixels	1920x1080
Max. Resolution	2MP
Horizontal Definition	≥1100TVL
Min. Illumination	Color: 0.005Lux Black & white: 0.0005Lux IR light (on): 0Lux
AGC	Auto; manual
Noise Reduction	2D NR; 3D NR
S/N Ratio	>56dB
White Balance	Auto/indoor/outdoor/tracking/manual/sodium lamp/natural/street light
Electronic Defog	Yes

Electronic Image Stabilization (EIS)	Yes
Electronic Shutter Speed	1/1s–1/100000s (auto or manual)
BLC	Yes
WDR	DWDR
HLC	Yes
Day/Night	Auto (ICR); color/B/W
Focus Mode	Auto
Focal Length	4mm; 8mm
Field of View	4mm: horizontal: 84°; vertical: 45°; diagonal: 99° 8mm: horizontal: 40°; vertical: 22°; diagonal: 46°

DORI Distance	Lens	Detect	Observe	Recognize	Identify
	4mm	55m (180ft)	22m (72ft)	11m (36ft)	5.5m (18ft)
	8mm	110m (361ft)	44m (144ft)	22m (72ft)	11m (36ft)

Close Focus Distance	0.2m
Aperture	4mm: F2.0 8mm: F1.9
IR On/Off control	Auto; manual
IR Distance	4mm: 35m (115ft) 8mm: 50m (164ft)

Audio and Video

Video Compression	H.265; H.264M; H.264H; H.264B; MJEPG
Resolution	Thermal: (1280×960) (default value)/XVGA (1024×768)/VGA (640×480)/(256×192) Visual: 1080P (1920×1080) (default value)/720P (1280×720)/D1 (704× 576/704×480)/CIF (352×288/352×240)
Video Frame Rate	Thermal: 50Hz: Main stream (1280×960@25fps/1024×768@25fps/640×480@25fps/256×192@25fps), sub stream (640×480@25fps/256×192@25fps) 60Hz: Main stream (1280×960@30fps/1024×768@30fps/640×480@25fps/256×192@25fps), sub stream (640×480@30fps/256×192@30fps) Visual: 50Hz: Main stream (1920×1080@25fps/1280×720@25fps/704×576@25fps), sub stream (704×576@25fps/352×288@25fps) 60Hz: Main stream (1920×1080@30fps/1280×720@30fps/704×480@30fps), sub stream (704×480@30fps/352×240@30fps)
Audio Compression	G.711a; G.711mu; AAC; PCM
Image Encoding Format	JPEG

PTZ

Pan/Tilt Range	Pan: 0°–360° endless; Tilt: -15°–90°
Manual Control Speed	Pan: 0.1°–200°/s; Tilt: 0.01°–120°/s

Preset Speed	Pan: 0.1°–240°/s; Tilt: 0.1°–200°/s
Preset	300
PTZ Mode	5 Auto Scan, 8 Tour, 5 Pattern, Auto Pan
Power Up Action	Auto restore to previous PTZ and lens status after power failure
Idle Motion	Activate Preset/ Scan/ Tour/ Pattern if there is no command in the specified period
Protocol	DH-SD, Pelco-P/D (Auto recognition)

General Function

Two-way Talk	Yes
Network Protocol	HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPOE; IPv4/v6; SNMP; QoS; UPnP; NTP
Region of Interest (ROI)	Yes
Edge Storage	FTP; Micro SD card (256G, hot plug)
Browser	IE: IE8 and the later, and explorer with IE core Google: 42 and the earlier Firefox: 42 and the earlier Safari: 10 and the earlier
User/Host	20 channels at most (the total bandwidth 64M)
Security	Authorized username and password; attached MAC address; encrypted HTTPS; IEEE 802.1x; controlled network access
User Management	Support 20 users at most and users are classified as two groups--administrator group and user group.
Malfunction Detection	Network disconnection; IP addresses conflict; SD card error (status or storage space)

Smart Event

General IVS Analytics	Tripwire/intrusion

Professional and Intelligent

Fire Detection	Yes
Cold/Hot Spot Trace	Auto tracking of the hottest spot and the coldest spot in the thermal image
IVS Analytics	Tripwire/intrusion
Network	1 10M/100M Ethernet port (RJ-45)
Alarm Input	2 channels
Alarm Output	1 channels
Audio Input	1 channel
Audio Output	1 channel
RS-485	1 channel

Power

Power Supply	DC 12V±15%/PoE+
Power Consumption	Max 24W

Environment

Operating Temperature	-30°C (-22°F) to +60°C (140°F)
Operating Humidity	≤95%

Self-Adaptive	Auto heating to protect the chip under the cold environment

Physical Characteristics

Protection Grade	IP66, anti-surge 6KV, anti-elctrostatic 8KV (touched by objects), anti-elctrostatic 15KV (air)
Dimensions	295mm×Φ160mm (11.61"×Φ6.3")
Packaging Dimensions	267.0mm×267.0mm×437.0mm (10.51"×10.51"×17.2")
Net Weight	≤3.2kg (7.05lb)
Gross Weight	≤4.7kg (10.36lb)
Installation Mode	Wall mount/pole mount/corner mount
Lens	Contained
Bracket	Contained

Certification

Certifications	CE (EN 60950:2000); FCC (FCC Part 15 SubpartB)

Ordering Information

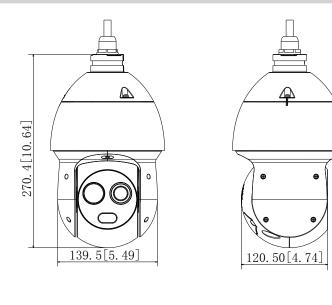| Type	Part Number	Description
DH-TPC-BF2221-T	DH-TPC-SD2221P-TB3F4	Thermal: 256x192 3.5mm lens Visible: 2MP 4mm lens
	DH-TPC-SD2221N-TB3F4	
	DH-TPC-SD2221P-TB7F8	Thermal: 256x192 7mm lens Visible: 2MP 8mm lens
	DH-TPC-SD2221N-TB7F8	
Accessories	PFB305W	Wall mount bracket
	PFB305W+PFA150	Water-proof junction box+wall mount bracket (pole mount)
	PFB305W+PFA151	Water-proof Junction Box+corner Mount Bracket (corner mount)
	PFA111+PFB300C	Joint connector+hang mount bracket (hang mount)

Accessories

Optional:

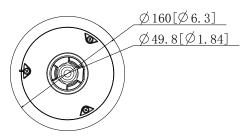|			
PFB305W Wall mount bracket	PFB305W+PFA150 Water-proof junction box+wall mount bracket (Pole Mount)	PFB305W+PFA151 Water-proof Junction Box+corner Mount Bracket (Corner Mount)	PFA111+PFB300C Joint connector+hang mount bracket (Hang Mount)

Wall Mount	Pole Mount	Corner Mount	Hang Mount
PFB305W	PFB305W+PFA150	PFB305W+PFA151	PFA111+PFB300C

Dimensions (mm[inch])

270.4[10.64]

139.5[5.49]

120.50[4.74]

Ø160[Ø6.3]

Ø49.8[Ø1.84]

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