



## S Series

# TT9333-E (7 mm)

## Thermal Turret Network Camera



### Technical Specifications

#### System Information

CPU	Multimedia SoC (System-on-Chip)
Flash	16GB
RAM	1GB

#### Camera Specifications

Image Sensor	Dual sensor: Uncooled VOx Micro bolometer 1/2.7" Progressive CMOS
Max. Resolution	Thermal lens: Effective pixels: 256x192  Image scale up to: 704x576  Optical lens: 2560x1440
Lens Type	Fixed-focal (Thermal lens) Fixed-focal (optical lens)
Focal Length	Thermal lens: f = 7 mm optical lens: f = 8 mm
Aperture	Thermal lens: F1.0 optical lens: F2.0
Iris Type	Fixed iris
Field of View	Thermal lens (7mm) 24°(Horizontal) 18° (Vertical)  optical lens (8mm) 40° (Horizontal) 20°(Vertical)
Illuminators	Built-in IR Illuminator up to 50 meters; White light for strobe light warning
Pan/Tilt/Zoom Functionalities	ePTZ: 4x digital zoom

Storage	MicroSD/SDHC/SDXC card (256GB capacity supported)
Pixel Size	12 $\mu$ m
Spectral Range	8 ~ 14 $\mu$ m
Sensitivity	NETD < 50 mK

Video	
Compression	H.265, H.264, MJPEG
Maximum Frame Rate	Thermal: 25 fps @ 704x576  Optical: 25 fps @ 2560x1440
Maximum Streams	2 simultaneous streams each sensor
Main Stream	Thermal: 25fps@704x576  Optical: 25fps@2560x1440, 2304x1296, 1920x1080, 1280x720
2nd Stream	Thermal: 25fps@704x576 , 352x240, 256x192  Optical: 25fps@704x576 , 640x480
Video Streaming	Adjustable resolution, CBR/VBR, Smart Encode
Image Settings	General settings video title and time stamp overlay, video orientation (flip, mirror, rotation)  Thermal settings white balance, image adjustment (brightness, contrast, sharpness)  Privacy mask Scheduled profile settings

Audio	
Audio Capability	Two-way audio
Compression	G.711, RAW_PCM
Interface	External microphone input External line output, Built-in microphone & speaker

Network	
Users	Live viewing for up to 10 clients
Security	Access list, Password protection, user access log, user account management
Protocols	IPv4/IPv6, HTTP, RTSP/RTP/RTCP, TCP/UDP, DHCP, DNS, PPPOE, SMTP, HTTPS, 802.1x, QOS, NTP, TCP/IP, FTP, UPnP, DDNS, ICMP, IGMP
Interface	10 Base-T/100 Base-TX Ethernet (RJ-45) *It is highly recommended to use standard CAT5e & CAT6 cables which are compliant with the 3P/ETL standard.
ONVIF	Profile G, S, T supported, specification available at <a href="http://www.onvif.org">www.onvif.org</a>

AI Analytics	
Compute Capability	SoC with built-in hardware deep learning accelerator (1T)

Application	<p>Temperature measurement alarms (difference, threshold, section, rise),</p> <p>Early Fire Detection (Fire spot detection, Smoking detection, Smoke &amp; flame detection)</p> <p>VCA (Intrusion, Single line crossing, Double line crossing, Loitering, Wrong way, Enter, Leave)</p> <p>Support VCA alarms triggering by person, car, person or car; Support temperature alarms triggering by ignoring person, car, person or car</p>
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## Solution Integration

Video Motion Detection	Smart motion detection
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## Alarm and Event

Event Trigger	Motion detection, I/O alarm, Disk alarm, VCA alarm, Temperature alarm
Event Action	Event notification via audio clip, digital output, email, FTP, SD card; white light flashing and horn warning

## General

Connectors	<p>RJ-45 cable connector for 10/100 Mbps Network/PoE connection</p> <p>Audio input</p> <p>Audio output</p> <p>DC 12V power input</p> <p>AC 24V power input</p> <p>Digital input *1</p> <p>Digital output *1</p> <p>RS485</p>
LED Indicator	System power and status indicator
Power Input	DC 12V, IEEE 802.3af PoE Class 3
Power Consumption	Max.10W
Dimensions	φ140 × 117.8 mm
Weight	1040g
Certifications	<p>EMC: CE (EN 55032, Class B), FCC (FCC Part 15 Subpart B), UKCA (BS EN 55032 Class B)</p> <p>Environment: IP66</p>
Operating Temperature	Working Temperature: -40°C ~ 60°C (-40°F ~ 140°F)
Humidity	90%

## System Requirements

Operating System	<p>Microsoft Windows 10/8/7</p> <p>Mac 10.12 (Chrome only)</p>
Web Browser	<p>Chrome 58.0 or above</p> <p>Internet Explorer 10/11</p>
Other Players	VLC: 1.1.11 or above

## Temperature Measurement

Temperature Range	-20°C to 150°C (-4°F to 302°F)
Measurement Rule	Point, line, polygon (up to 20 rules in total)
Temperature Alarm	Threshold alarm, Temperature difference alarm, Temperature rise alarm, Section alarm
Accuracy	± 2°C / ±2%

Included Accessories	
Packing Contents	Quick installation guide, alignment sticker, screw pack, waterproof accessory bag

VCA Detection Range	
VCA Detection Distance (Human: 1.8x0.5m)	65m (213.3ft)
VCA Detection Distance (Vehicle: 4x1.5m)	144m(472.4ft)

Temperature Measurement	
Object: 0.2x0.2m	23.3m (76.4 ft)

Fire Detection	
Object: 1x1m	417m (1368ft)
Object: 0.2x0.2m	83.3m (273ft)
Smoking Detection	25m (82ft)

Johnson's Criteria (Thermal image)	
Human 1.8x0.5m	
Detection (1.5 pixels)	291m (954ft)
Recognition (6 pixels)	73m (239ft)
Identification (12 pixels)	36m (118ft)

Vehicle 4x1.5m	
Detection (1.5 pixels)	894m (2933ft)
Recognition (6 pixels)	224m (734ft)
Identification (12 pixels)	112m (367ft)