



S TB9331-E

Thermal Bullet Network Camera



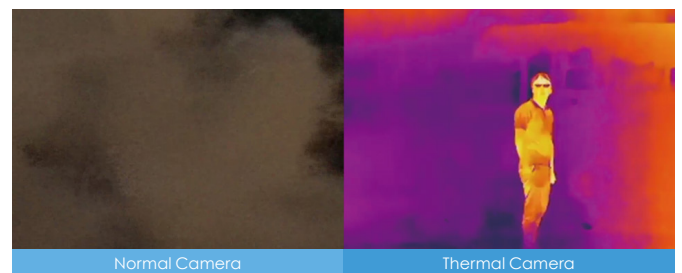
720x480 • NETD < 50 mk • H.265 • Trend Micro IoT Security • -50°C ~ 60°C • IP66/67 • IK10 • NEMA 4X

VIVOTEK's TB9331-E is an H.265 outdoor thermal bullet network camera designed to detect people and vehicles in wild weather, difficult lighting conditions, and any situation that create poor visibility. With heat based thermal imagery and lens options of 8.8/19/35/50mm, the TB9331-E supports long distance monitoring of vehicles up to 4,500m away even in complete darkness or under challenging climate conditions such as fog, rain, smoke and dust.

The TB9331-E offers 720x480 resolution with an uncooled thermal sensor and VIVOTEK's VCA (Video Content Analysis) to enhance perimeter protection and boarder security. This camera is also embedded with Trend Micro IoT Security software to provide users with higher levels of network protection. With an IP66, IP67, IK10 and NEMA 4X-rated rugged design, the TB9331-E will withstand shock & vibration, humidity, dust, and even extreme temperature fluctuations to maintain stable and reliable video no matter how harsh the environment.

Key Features

- Uncooled VOx Infrared Detector
- 720x480 Resolution
- NETD < 50 mk @ F1.0
- H.265 Compression Technology
- Trend Micro IoT Security
- Two-way Audio
- Supports ONVIF Standard to Simplify Integration and Enhance Interoperability
- UL Certification
- Weather-proof IP66/IP67, Vandal-proof IK10 and NEMA 4X-rated Housing
- VIVOTEK VCA (Video Content Analysis) Support



Infrared thermal image through fog and smoke.

Technical Specifications

Model	TB9331-E(8.8mm) TB9331-E(19mm) TB9331-E(35mm) TB9331-E(50mm)	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
System Information		Audio	
CPU	Multimedia SoC (System-on-Chip)	Audio Capability	Two-way audio (full deuplex)
Flash	128 MB	Compression	G.726, G.711
RAM	512 MB	Interface	External microphone input External line output
Camera Features		Network	
Image Sensor	Uncooled VOx infrared detector	Users	Live viewing for up to 10 clients
Maximum Resolution	Effective pixels: 720x480 Image scale up to: 960x640	Security	Access list, digest authentication, HTTPS, IEEE 802.1x, Password protection, user access log, user account management
Pixel Size	17 μ m	Protocols	802.1X, ARP, Bonjour, CIFS/SMB, DDNS, DHCP, DNS, FTP, HTTP, HTTPS, ICMP, IGMP, IPv4, IPv6, NTP, PPPoE, QoS (CoS/DSCP), RTSP/RTP/RTCP, SMTP, SNMP, SSL, TCP/IP, TLS, UDP, UPnP
Spectral Range	8 ~ 14 μ m	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.
Sensitivity	NETD < 50 mk	ONVIF	Profile G, S supported, specification available at www.onvif.org
Lens Type	Fixed-focal (Thermal lens)	Intelligent Video	
Focal Length	TB9331-E(8.8mm): f = 8.8 mm TB9331-E(19mm): f = 19 mm TB9331-E(35mm): f = 35 mm TB9331-E(50mm): f = 50 mm	Video Motion Detection	Five-window video motion detection, human detection, time filter
Aperture	F1.0	VCA	Line crossing detection, field detection, loitering detection
Auto-iris	Fixed iris	VADP Package	Trend Micro IoT Security (3-year free trial)
Field of View	TB9331-E(8.8mm): 69.6° (Horizontal) 49.7° (Vertical) 79.8° (Diagonal) TB9331-E(19mm): 35.7° (Horizontal) 24.2° (Vertical) 42.3° (Diagonal) TB9331-E(35mm): 19.8° (Horizontal) 13.3° (Vertical) 23.7° (Diagonal) TB9331-E(50mm): 14° (Horizontal) 9.3° (Vertical) 16.7° (Diagonal)	Alarm and Event	
Pan/Tilt/Zoom Functionalities	ePTZ: 20x digital zoom (4x on IE plug-in, 5x built-in)	Event Trigger	Audio detection, camera tampering detection, cybersecurity events (brute force attack event, cyberattack event, quarantine event), digital input, manual trigger, motion detection, periodical trigger, recording notification, SD card life expectancy, shock detection, system boot
Storage	Seamless Recording to MicroSD/SDHC/SDXC card and recording to network-attached storage (NAS)	Event Action	Event notification via audio clip, digital output, email, HTTP, FTP, NAS server, SD card File upload via email, HTTP, FTP, NAS server, SD card
Video		General	
Compression	H.265, H.264, MJPEG	Connectors	RJ-45 cable connector for 10/100Mbps Network/PoE connection Audio input Audio output DC 12V power input AC 24V power input Digital input Digital output BNC RS485
Maximum Frame Rate	30 fps @ 720x480		
Maximum Streams	4 simultaneous streams		
Video Streaming	Adjustable resolution, quality and constant bit rate control, Smart Stream II		

Technical Specifications

LED Indicator	System power and status indicator
Power Input	AC 24V, DC 12V, IEEE 802.3at PoE Class 4 (Simultaneous Power Redundancy Supported)
Power Consumption	PoE: Max. 14 W DC 12V: Max. 11 W AC 24V: Max. 12.4 W
Dimensions	TB9331-E(8.8mm): 121 x 121 x 471.2 mm (with junction box) TB9331-E(19mm): 121 x 121 x 452.2 mm (with junction box) TB9331-E(35mm)/(50mm): 121 x 121 x 455.6 mm (with junction box)
Weight	TB9331-E(8.8mm)/(35mm)/(50mm): 2,115 g TB9331-E(19mm): 2,050 g
Operating Temperature	Start Temperature: -40°C ~ 60°C (-40°F ~ 140°F) Working temperature: -50°C ~ 60°C (-58°F ~ 140°F)
Humidity	90%
Warranty	36 months

System Requirements

Operating System	Microsoft Windows 10/8/7 Mac 10.12 (Chrome only)
Web Browser	Chrome 58.0 or above Internet Explorer 10/11

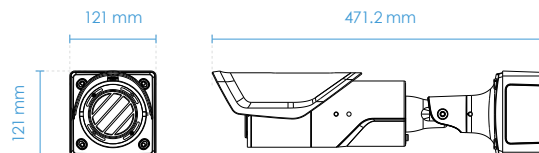
Other Players	VLC: 1.1.11 or above
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Included Accessories

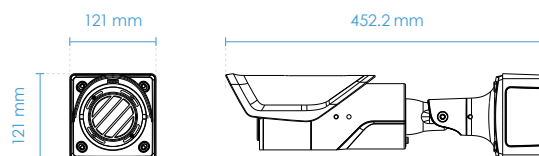
Others	Quick installation guide, alignment sticker, screw pack, waterproof accessory bag, junction box, sunshield
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Dimensions

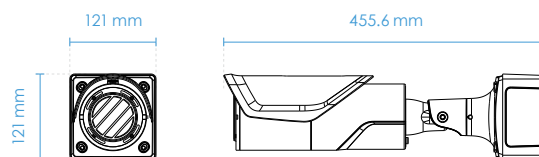
• TB9331-E(8.8mm)



• TB9331-E(19mm)



• TB9331-E(35mm)/(50mm)



Compatible Accessories

Mounting Kits



AM-312
Pole Mount Adapter



AM-412
Corner Mount Adapter



AM-719
Junction Box (Standard Package)

Coverage Table

Detection Ranges					
Resolution		720x480			
Focal Length		8.8 mm	19 mm	35 mm	50 mm
FOV	Horizontal	69.6°	35.7°	19.8°	14°
	Vertical	49.7°	24.2°	13.3°	9.3°
Human 1.8 x 0.5 m (5 x 1 ft)	Detection (1.5 pixels)	262 m (859 ft)	566 m (1,856 ft)	1,043 m (3,422 ft)	1,490 m (4,888 ft)
	Recognition (6 pixels)	66 m (216 ft)	142 m (465 ft)	261 m (856 ft)	373 m (1,223 ft)
	Identification (12 pixels)	33 m (108 ft)	71 m (232 ft)	130 m (426 ft)	186 m (610 ft)
Vehicle 4 x 1.5 m (13 x 4 ft)	Detection (1.5 pixels)	801 m (2,627 ft)	1,729 m (5,672 ft)	3,184 m (10,446 ft)	4,549 m (14,924 ft)
	Recognition (6 pixels)	200 m (656 ft)	432 m (1,416 ft)	796 m (2,611 ft)	1,137 m (3,730 ft)
	Identification (12 pixels)	100 m (328 ft)	216 m (708 ft)	398 m (1,305 ft)	569 m (1,866 ft)

Note: The detection ranges are calculated using Johnson's criteria and may vary under different environmental variables.

Standard VCA Ranges					
Resolution		720x480			
Focal Length		8.8 mm	19 mm	35 mm	50 mm
Human 1.8 x 0.5 m (5 x 1 ft)		33 m (108 ft)	71 m (232 ft)	130 m (426 ft)	186 m (610 ft)
Vehicle 4 x 1.5 m (13 x 4 ft)		100 m (328ft)	216 m (708 ft)	398 m (1,305 ft)	569 m (1,866 ft)

Note: The detection ranges are the theoretical values and may vary under different environmental variables.