



S TB9331-E

Thermal Bullet Network Camera



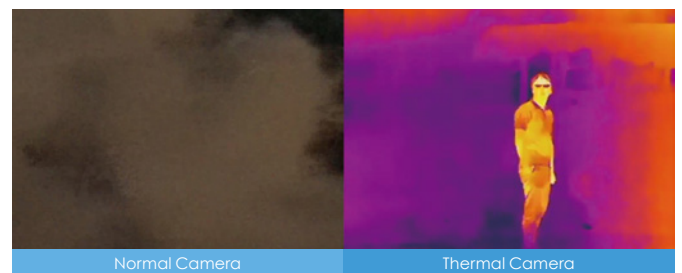
720x480 • NETD < 50 mk • H.265 • Trend Micro IoT Security • -50°C ~ 60°C • IP66/67 • IK10 • NEMA 4X

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 border 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)		
System Information			
CPU	Multimedia SoC (System-on-Chip)		
Flash	128MB		
RAM	512MB		
Camera Features			
Image Sensor	Uncooled VOx infrared detector		
Maximum Resolution	Effective pixels: 720x480 Image scale up to: 960x640		
Pixel Size	17 μm		
Spectral Range	8 ~ 14 μm		
Sensitivity	NETD < 50 mk		
Lens Type	Fixed-focal (Thermal Lens)		
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		
Aperture	F1.0		
Auto-iris	Fixed-iris		
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)		
Pan/Tilt/Zoom Functionalities	ePTZ: 20x digital zoom (4x on IE plug-in, 5x built-in)		
On-board Storage	Slot type: MicroSD/SDHC/SDXC card slot Seamless Recording		
Video			
Compression	H.265, H.264, MJPEG		
Maximum Frame Rate	30 fps @ 720x480		
Maximum Streams	4 simultaneous streams		
Video Streaming	Adjustable resolution, quality and constant bit rate control, Smart Stream II		
Image Settings	Time stamp, text overlay, flip & mirror, configurable brightness/contrast/sharpness		
Audio			
Audio Capability	Two-way Audio (full duplex)		
Compression	G.726, G.711		
Interface	External microphone input External line output		
Network			
Users	Live viewing for up to 10 clients		
Protocols	802.1X, ARP, CIFS/SMB, CoS, DDNS, DHCP, DNS, FTP, HTTP, HTTPS, ICMP, IGMP, IPv4, IPv6, NTP, PPPoE, QoS, RTSP/RTP/RTCP, SMTP, SNMP, SSL, TCP/IP, TLS, UDP, UPnP		
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	Supported, specification available at www.onvif.org		
Intelligent Video			
Video Motion Detection	Five-window video motion detection		
VCA	Line crossing detection, field detection, loitering detection		
VADP Package	Genetec package, Trend Micro IoT Security, Stratocast		
Alarm and Event			
Alarm Triggers	Motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection, audio detection, SD card life expectancy, cybersecurity events (block brute force attack, block cyber attack, quarantine event)		
Alarm Events	Event notification via digital output, email, HTTP, FTP, NAS server, SD card, push notification File upload via email, HTTP, FTP, NAS server, SD card		
General			
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*1 Digital output*1 BNC RS485		
LED Indicator	System power and status indicator		
Power Input	DC 12V AC 24V (Redundant Power) IEEE 802.3at PoE Class 4		
Power Consumption	PoE: Max. 14 W DC 12V: Max. 11 W AC 24V: Max. 12.4 W		

Technical Specifications

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): 2,115 g TB9331-E(19mm): 2,050 g TB9331-E(35mm): 2,115 g TB9331-E(50mm): 2,115 g
Casing	IP66, IP67, IK10(Metal Housing), NEMA 4X
Safety Certifications	CE, LVD, FCC Class A, VCCI, C-Tick, UL, EN50121-4
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

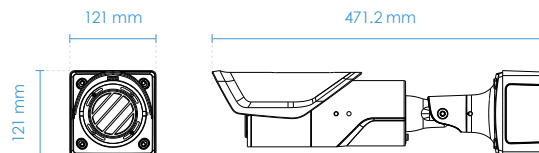
Operating System	Microsoft Windows 8/7 Mac 10.12 (Chrome only)
Web Browser	Internet Explorer 10/11 Chrome version 58 or above
Other Players	VLC: 1.1.11 or above QuickTime: 7 or above

Included Accessories

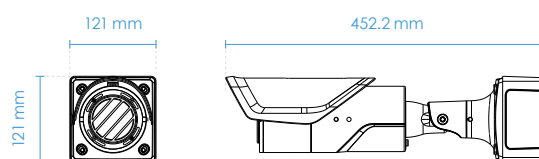
Others Quick installation guide, warranty card, screw pack, alignment sticker, junction box

Dimensions

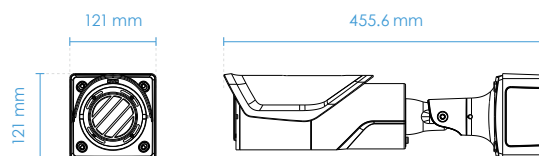
• TB9331-E(8.8mm)



• 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.