

# AXIS Q1961-TE Thermal Camera

## Dependable remote temperature monitoring

Ideal to improve operational efficiency, this thermometric camera lets you remotely monitor temperatures from  $-40\text{ }^{\circ}\text{C}$  to  $350\text{ }^{\circ}\text{C}$  ( $-40\text{ }^{\circ}\text{F}$  to  $660\text{ }^{\circ}\text{F}$ ). You'll know if your equipment is close to overheating and can act to avoid unwanted downtime. Supporting up to 10 configurable polygonal detection areas, you can monitor for specific temperature levels or change-rates. With early fire detection analytics, it's possible to monitor early signs of fire with smart filtering of potential false alarms. AXIS Q1961-TE includes built-in cybersecurity features to help safeguard your system. Furthermore, edge-to-edge technology lets you connect network speakers to enable audio alarms.

- > [Polygonal temperature monitoring areas](#)
- > [Early fire detection analytics](#)
- > [Spot temperature reading](#)
- > [Built-in cybersecurity features](#)
- > [IP66-, IP67-, IK10- and NEMA 4X -rated](#)



# AXIS Q1961-TE Thermal Camera

## Camera

### Image sensor

Uncooled microbolometer 384x288 pixels, pixel size 17  $\mu\text{m}$ .

Spectral range: 8-14  $\mu\text{m}$

### Lens

Athermalized

7 mm

Horizontal field of view: 55°, F1.18

Vertical field of view: 40.7°

Minimum focus distance: 1.3 m (4.3 ft)

13 mm

Horizontal field of view: 28°, F1.0

Vertical field of view: 21°

Minimum focus distance: 4 m (13 ft)

### Sensitivity

NETD 40 mK @25C, F1.0

## Thermometry

### Object temperature range

-40 °C to 350 °C (-40 °F to 662 °F)

### Temperature accuracy

Below 120 °C (248 °F):  $\pm 5$  °C ( $\pm 9$  °F) accuracy

Above 120 °C (248 °F):  $\pm 15\%$  accuracy

### Detection range

We recommend the size of a monitored object to cover at least 10x10 pixels in 384x288.

### General

Spot temperature meter, up to 10 polygon temperature detection areas

## System on chip (SoC)

### Model

ARTPEC-8

### Memory

2048 MB RAM, 8192 MB Flash

## Compute capabilities

Deep learning processing unit (DLPU)

## Video

### Video compression

H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles

H.265 (MPEG-H Part 2/HEVC) Main Profile

Motion JPEG

### Resolution

Sensor is 384x288. Image can be scaled up to 768x576.

### Frame rate

Up to 8.3 fps or 30 fps

### Video streaming

Up to 20 unique and configurable video streams<sup>1</sup>

Axis Zipstream technology in H.264 and H.265

Controllable frame rate and bandwidth

VBR/ABR/MBR H.264/H.265

Video streaming indicator

### Image settings

Contrast, brightness, sharpness, local contrast, exposure zones, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, text and image overlay, polygon privacy mask, electronic image stabilization, multiple color palettes

### Image processing

Axis Zipstream

## Audio

### Features

AGC automatic gain control

Network speaker pairing

Spectrum visualizer<sup>2</sup>

### Streaming

Configurable duplex:

One-way (simplex, half duplex)

1. We recommend a maximum of 3 unique video streams per camera or channel, for optimized user experience, network bandwidth, and storage utilization. A unique video stream can be served to many video clients in the network using multicast or unicast transport method via built-in stream reuse functionality.

2. Feature available with ACAP

## Input

10-band graphic equalizer  
Input for external unbalanced microphone, optional 5 V microphone power  
Digital input, optional 12 V ring power  
Unbalanced line input

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## Output

Output via network speaker pairing

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## Encoding

24bit LPCM, AAC-LC 8/16/32/44.1/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Opus 8/16/48 kHz  
Configurable bit rate

## Network

### Network protocols

IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>3</sup>, HTTP/2, TLS<sup>3</sup>, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP<sup>®</sup>, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, PTP, NTS, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, SSH, LLDP, CDP, MQTT v3.1.1, Secure syslog (RFC 3164/5424, UDP/TCP/TLS), Link-Local address (ZeroConf)

## System integration

### Application Programming Interface

Open API for software integration, including VAPIX<sup>®</sup> and AXIS Camera Application Platform (ACAP); specifications at [axis.com/developer-community](https://axis.com/developer-community).  
One-click cloud connection  
ONVIF<sup>®</sup> Profile G, ONVIF<sup>®</sup> Profile M, ONVIF<sup>®</sup> Profile S, and ONVIF<sup>®</sup> Profile T, specifications at [onvif.org](https://onvif.org)

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### Video management systems

Compatible with AXIS Camera Station Edge, AXIS Camera Station Pro, AXIS Camera Station 5, and video management software from Axis' partners available at [axis.com/vms](https://axis.com/vms).

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### Onscreen controls

Electronic image stabilization  
Heater

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## Event conditions

Application: early fire detection  
Audio: audio detection, audio clip playing, audio clip currently playing  
Call: state, state change  
Device status: above operating temperature, above or below operating temperature, below operating temperature, within operating temperature, IP address removed, new IP address, network lost, system ready, ring power overcurrent protection, live stream active  
Digital audio input status  
Edge storage: recording ongoing, storage disruption, storage health issues detected  
I/O: digital input, manual trigger, virtual input  
MQTT: subscribe  
Scheduled and recurring: schedule  
Video: average bitrate degradation, tampering, temperature detection, temperature detection in any area, temperature deviation

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## Event actions

Audio clips: play, stop  
I/O: toggle I/O once, toggle I/O while the rule is active  
MQTT: publish  
Notification: HTTP, HTTPS, TCP, and email  
Overlay text  
Pre- and post-alarm video or image buffering for recording or upload  
Recordings: SD card and network share  
SNMP traps: send, send while the rule is active  
Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share, and email

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## Built-in installation aids

Pixel counter

## Analytics

### Applications

#### Included

AXIS Video Motion Detection, AXIS Motion Guard, AXIS Fence Guard, AXIS Loitering Guard, early fire detection, active tampering alarm, audio detection

#### Supported

AXIS Perimeter Defender  
Support for AXIS Camera Application Platform enabling installation of third-party applications, see [axis.com/acap](https://axis.com/acap)

## Approvals

### Product markings

CSA, UL/cUL, UKCA, CE, KC

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3. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://openssl.org)), and cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

## Supply chain

TAA compliant

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## EMC

CISPR 35, CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, IEC 62236-4

Australia/New Zealand: RCM AS/NZS CISPR 32 Class A

Canada: ICES-3(A)/NMB-3(A)

Japan: VCCI Class A

Korea: KS C 9835, KS C 9832 Class A

USA: FCC Part 15 Subpart B Class A

Railway: IEC 62236-4

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## Safety

CAN/CSA C22.2 No. 62368-1 ed. 3,

IEC/EN/UL 62368-1 ed. 3

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## Environment

IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78, IEC/EN 60529 IP66/IP67, IEC/EN 62262 IK10<sup>4</sup>, ISO 21207 Method B, MIL-STD-810H (Method 501.7, 502.7, 505.7, 506.6, 507.6, 509.7, 510.7, 514.8, 516.8, 521.4), NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9)

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## Network

NIST SP500-267

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## Cybersecurity

ETSI EN 303 645, BSI IT Security Label, FIPS 140

## Cybersecurity

### Edge security

**Software:** Signed OS, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 Client Credential Flow/OpenID Authorization Code Flow for centralized ADFS account management, password protection, Axis Cryptographic Module (FIPS 140-2 level 1), AES-XTS-Plain64 256bit SD card encryption

**Hardware:** Axis Edge Vault cybersecurity platform TPM 2.0 (CC EAL4+, FIPS 140-2 Level 2), secure element (CC EAL 6+), system-on-chip security (TEE), Axis device ID, secure keystore, signed video, secure boot, encrypted filesystem (AES-XTS-Plain64 256bit)

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### Network security

IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>5</sup>, IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS<sup>5</sup>, TLS v1.2/v1.3<sup>5</sup>, Network Time Security (NTS), X.509 Certificate PKI, host-based firewall

## Documentation

*AXIS OS Hardening Guide*

*Axis Vulnerability Management Policy*

*Axis Security Development Model*

AXIS OS Software Bill of Material (SBOM)

To download documents, go to [axis.com/support/cybersecurity/resources](https://axis.com/support/cybersecurity/resources)

To read more about Axis cybersecurity support, go to [axis.com/cybersecurity](https://axis.com/cybersecurity)

## General

### Casing

IP66/IP67-, NEMA 4X-, and IK10-rated<sup>4</sup>

Polycarbonate blend and aluminum

Color: white NCS S 1002-B

For repainting instructions, go to the product's support page. For information about the impact on warranty, go to [axis.com/warranty-implication-when-repainting](https://axis.com/warranty-implication-when-repainting).

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### Power

Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3

Typical 4.3 W, max 12.95 W

10–28 V DC, typical 4.1 W, max 12.95 W

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### Connectors

Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE

I/O: Terminal block for 1 supervised alarm input and 1 output (12 V DC output, max. load 50 mA)

Audio: 3.5 mm mic/line in

Power: DC input, terminal block

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### Storage

Support for microSD/microSDHC/microSDXC card

Recording to network-attached storage (NAS)

For SD card and NAS recommendations see [axis.com](https://axis.com)

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### Operating conditions

-40 °C to 60 °C (-40 °F to 140 °F)

Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F)

Humidity 10–100% RH (condensing)

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### Storage conditions

-40 °C to 65 °C (-40 °F to 149 °F)

Humidity 5–95% RH (non-condensing)

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4. Excluding front window

5. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://openssl.org)), and cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).

## Dimensions

Length: 272 mm (10.7 in)

ø 132 mm (5.2 in)

Effective Projected Area (EPA): 0.022 m<sup>2</sup> (0.24 ft<sup>2</sup>)

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## Weight

1400 g (3.1 lb)

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## Box content

Camera, installation guide, drill template, TORX® L-keys, terminal block connectors, connector guard, cable gaskets, owner authentication key

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## Optional accessories

AXIS T94F01M J-Box/Gang Box Plate, AXIS T91A47 Pole Mount, AXIS T94P01B Corner Bracket, AXIS T94F01P Conduit Back Box, AXIS Weather Shield K, Axis PoE Midspans

For more accessories, go to [axis.com/products/axis-q1961-te#accessories](https://axis.com/products/axis-q1961-te#accessories)

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## System tools

AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator

Available at [axis.com](https://axis.com)

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## Languages

English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese

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## Warranty

5-year warranty, see [axis.com/warranty](https://axis.com/warranty)

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## Export control

This product is subject to export control regulations, and you should always comply with all applicable national and international export or re-export control regulations.

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## Part numbers

Available at [axis.com/products/axis-q1961-te#part-numbers](https://axis.com/products/axis-q1961-te#part-numbers)

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## Sustainability

### Substance control

PVC free, BFR/CFR free in accordance with JEDEC/ECA Standard JS709

RoHS in accordance with EU RoHS Directive 2011/65/EU/ and EN 63000:2018

REACH in accordance with (EC) No 1907/2006.

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## Materials

Screened for conflict minerals in accordance with OECD guidelines

To read more about sustainability at Axis, go to [axis.com/about-axis/sustainability](https://axis.com/about-axis/sustainability)

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## Environmental responsibility

[axis.com/environmental-responsibility](https://axis.com/environmental-responsibility)

Axis Communications is a signatory of the UN Global Compact, read more at [unglobalcompact.org](https://unglobalcompact.org)

## Detect, Recognize, Identify (DRI)

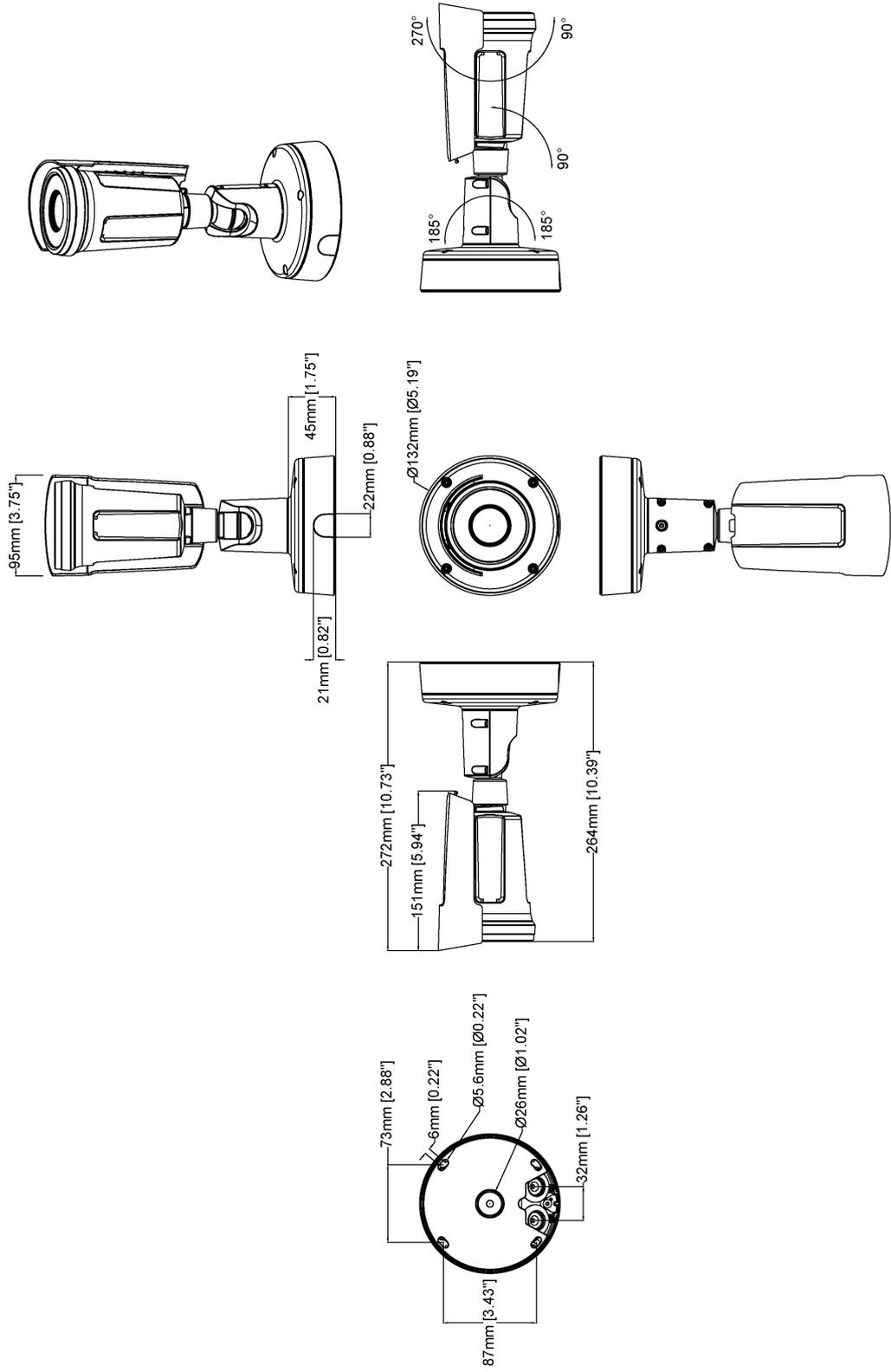
AXIS Q1961-TE (7 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 200 m (656 ft) Vehicle: 610 m (2,000 ft)
Recognize	6 pixels	Human: 50 m (164 ft) Vehicle: 153 m (502 ft)
Identify	12 pixels	Human: 25 m (82 ft) Vehicle: 76 m (250 ft)

AXIS Q1961-TE (13 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 393 m (1,290 ft) Vehicle: 1,205 m (3,952 ft)
Recognize	6 pixels	Human: 98 m (320 ft) Vehicle: 301 m (987 ft)
Identify	12 pixels	Human: 49 m (160 ft) Vehicle: 151 m (495 ft)

We used Johnson's criteria to calculate the theoretical values shown in the table. Human and vehicle sizes were assumed to be 1.8 x 0.5 m and 4.0 x 1.5 m, respectively.

Thoroughly evaluate your scene using, for example, AXIS Site Designer. Consider factors like weather conditions when determining actual detection distances.

# Dimension drawing



**AXIS** COMMUNICATIONS  
 www.axis.com

**AXIS Q1961-TE Thermal Camera**

Revision	v.01	Revision date	2022-06-16
Paper size	A4	Release date	2022-06-16
Created by	MF	Scale	1:5

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## Highlighted capabilities

### Thermometry

Thermal cameras detect objects using the infrared radiation (heat) emitted by all objects. Temperature-calibrated thermal cameras, called thermometric cameras, can measure absolute temperatures, while surveillance-optimized thermal cameras show relative temperatures. All types of thermal cameras have excellent object detection capabilities regardless of light conditions – even in total darkness.

### Isothermal palette

A mode that allows the user to select a color range to represent different temperatures in a scene. Each color in an isotherm palette corresponds to a specific temperature value. The user can choose between black-and-white ranges, color ranges, or a mix between the two. The same input (measured thermal radiation) can result in different visual appearance depending on how each pixel value is mapped to a color range.

### Axis Edge Vault

Axis Edge Vault is the hardware-based cybersecurity platform that safeguards the Axis device. It forms the foundation that all secure operations depend on and offer features to protect the device's identity, safeguard its integrity and protect sensitive information from unauthorized access. For instance, **secure boot** ensures that a device can boot only with **signed OS**, which prevents physical supply chain tampering. With signed OS, the device is also able to validate new device software before accepting to install it. And the **secure keystore** is the critical building-block for protecting cryptographic information used for secure communication (IEEE 802.1X, HTTPS, Axis device ID, access control keys etc.) against malicious extraction in the event of a security breach. The secure keystore and secure connections are provided through a Common Criteria or FIPS 140 certified hardware-based cryptographic computing module.

Furthermore, signed video ensures that video evidence can be verified as untampered. Each camera uses its unique video signing key, which is securely stored in the secure keystore, to add a signature into the video stream allowing video to be traced back to the Axis camera from where it originated.

To read more about Axis Edge Vault, go to [axis.com/solutions/edge-vault](https://axis.com/solutions/edge-vault).

### Zipstream

The Axis Zipstream technology preserves all the important forensic in the video stream while lowering bandwidth and storage requirements by an average of 50%. Zipstream also includes three intelligent algorithms, which ensure that relevant forensic

information is identified, recorded, and sent in full resolution and frame rate.

### Electronic image stabilization

Electronic image stabilization (EIS) provides smooth video in situations where a camera is subject to vibrations. Built-in gyroscopic sensors continuously detect the camera's movements and vibrations, and they automatically adjust the frame to ensure you always capture the details you need. Electronic image stabilization relies on different algorithms for modeling camera motion, which are used to correct the images.

For more information, see [axis.com/glossary](https://axis.com/glossary)