AXIS Q1961-TE Thermal Camera
Dependable remote temperature monitoring

Ideal to improve operational efficiency, this thermometric camera lets you remotely monitor temperatures from –40 °C to 350 °C (–40 °F to 660 °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**

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AXIS Q1961-TE Thermal Camera
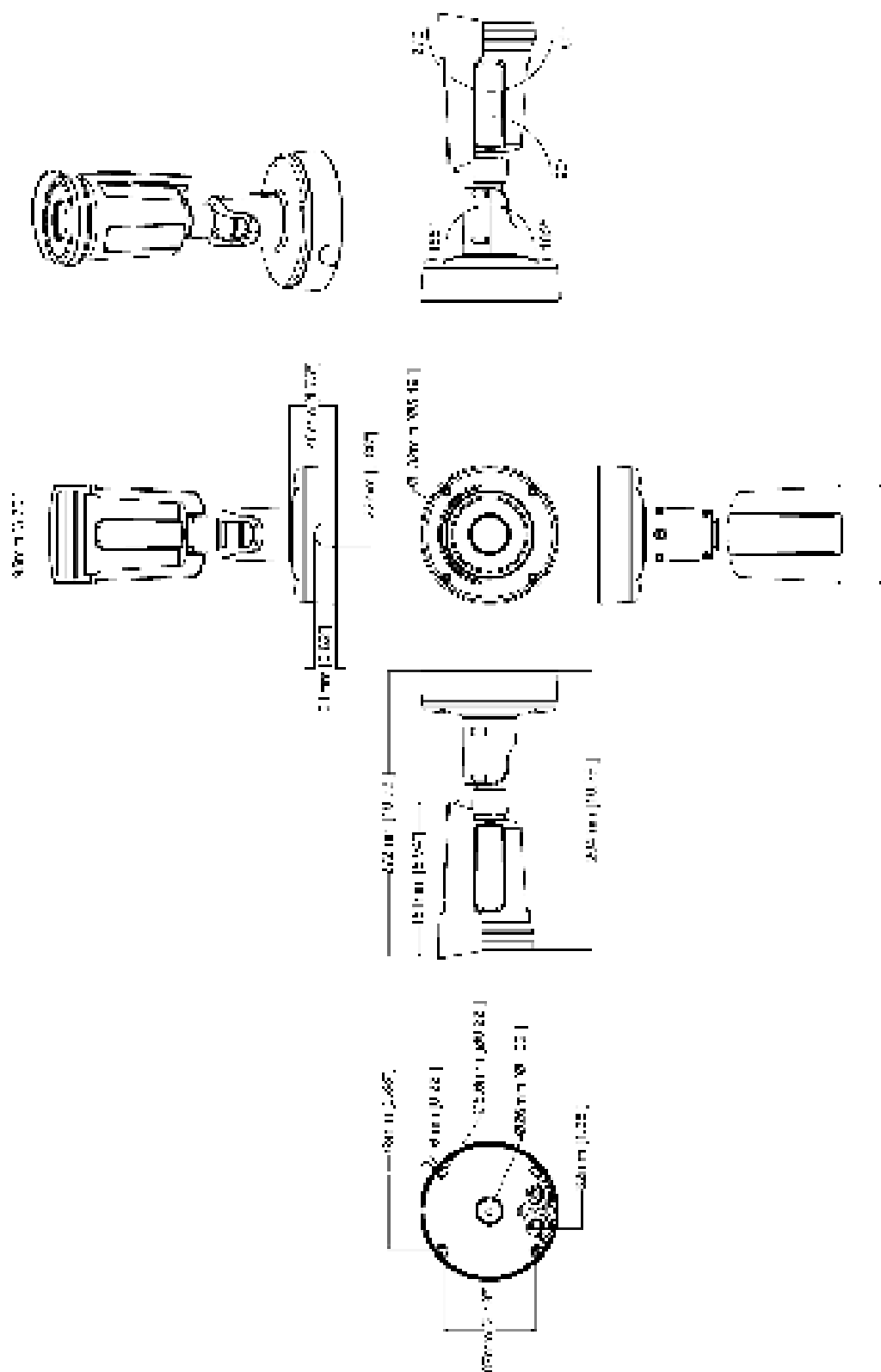
Camera

Image sensor	Uncooled microbolometer 384x288 pixels, pixel size 17 µm. Spectral range: 8-14 µm
Lens	Athermalized **7 mm** Horizontal field of view: 55°, F1.18 Minimum focus distance: 1.3 m (4.3 ft) **13 mm** Horizontal field of view: 28°, F1.0 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): ±5 °C (±9 °F) accuracy Above 120 °C (248 °F): ±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[a] 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

Audio features	AGC automatic gain control Network speaker pairing Spectrum visualizer[b]
Audio streaming	Configurable duplex: One-way (simplex, half duplex)
Audio 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
Audio output	Output via network speaker pairing
Audio 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[c], HTTP/2, TLS[c], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, 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® and AXIS Camera Application Platform (ACAP); specifications at *axis.com/developer-community*. ACAP includes Native SDK and Computer Vision SDK. One-click cloud connection ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specifications at *onvif.org*
Video management systems	Compatible with AXIS Companion, AXIS Camera Station, video management software from Axis' Application Development Partners available at *axis.com/vms*
Onscreen controls	Electronic image stabilization Heater
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 (above/below/increasing/decreasing)
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
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*

Approvals

Product markings	CSA, UL/cUL, UKCA, CE, KC
Supply chain	TAA compliant
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
Safety	CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3
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[d], 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)

Network	NIST SP500-267

Cybersecurity

Edge security	**Software:** Signed firmware, brute force delay protection, digest authentication, password protection, 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)
Network security	IEEE 802.1X (EAP-TLS)[c], IEEE 802.1AR, HTTPS/HSTS[c], TLS v1.2/v1.3[c], Network Time Security (NTS), X.509 Certificate PKI, IP address filtering
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* To read more about Axis cybersecurity support, go to *axis.com/cybersecurity*

General

Casing	IP66/IP67-, NEMA 4X-, and IK10-rated[d] Polycarbonate blend and aluminum, germanium window 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.*
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
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
Storage	Support for microSD/microSDHC/microSDXC card Recording to network-attached storage (NAS) For SD card and NAS recommendations see *axis.com*
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)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F) Humidity 5-95% RH (non-condensing)

Dimensions	Length: 272 mm (10.7 in) ø 132 mm (5.2 in) Effective Projected Area (EPA): 0.022 m^2 (0.24 ft^2)
Weight	1400 g (3.1 lb)
Box content	Camera, installation guide, drill template, TORX® L-keys, terminal block connectors, connector guard, cable gaskets, owner authentication key
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*
System tools	AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator Available at *axis.com*
Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese
Warranty	5-year warranty, see *axis.com/warranty*
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.
Part numbers	Available at *axis.com/products/axis-q1961-te#part-numbers*

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.
Materials	Screened for conflict minerals in accordance with OECD guidelines To read more about sustainability at Axis, go to *axis.com/about-axis/sustainability*
Environmental responsibility	*axis.com/environmental-responsibility* Axis Communications is a signatory of the UN Global Compact, read more at *unglobalcompact.org*

a. *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.*
b. *Feature available with ACAP*
c. *This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (openssl.org), and cryptographic software written by Eric Young (eay@cryptsoft.com).*
d. *Excluding front window*

Dimension drawing

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Key features and technologies

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 offers features to guarantee the device's identity and integrity and to protect your sensitive information from unauthorized access.

Establishing the root of trust starts at the device's boot process. In Axis devices, the hardware-based mechanism **secure boot** verifies the operating system (AXIS OS) that the device is booting from. AXIS OS, in turn, is cryptographically signed (**signed firmware**) during the build process. Secure boot and signed firmware tie into each other and ensure that the firmware has not been tampered with during the lifecycle of the device and that the device only boots from authorized firmware. This creates an unbroken chain of cryptographically validated software for the chain of trust that all secure operations depend on.

From a security aspect, 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 is provided through a Common Criteria and/or FIPS 140 certified hardware-based cryptographic computing module. Depending on security requirements, an Axis device can have either one or multiple such modules, like a TPM 2.0 (Trusted Platform Module) or a secure element, and/or a system-on-chip (SoC) embedded Trusted Execution Environment (TEE).

Signed video ensures that video evidence can be verified as untampered without proving the chain of custody of the video file. Each camera uses its unique video signing key, which is securely stored in the secure keystore, to add a signature into the video stream. This allows video to be traced back to the Axis camera from where it originated, so it's possible to verify that the footage has not been tampered with after it left the camera.

To read more about Axis Edge Vault, go to *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*

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