AXIS Q1971-E Thermal Camera
Detect and verify regardless of weather and light

Ideal for perimeter protection, this robust, halogen-free camera can detect and verify regardless of weather and light conditions even in low-contrast scenes. With five lens alternatives, it ensures optimal detection to suit specific needs. This AI-based camera enables proactive surveillance. And AXIS Perimeter Defender is available for enhanced protection. Built on a powerful platform, it supports third-party analytics. It features two I/O ports and with edge-to-edge technology you can connect, for instance, a horn speaker to enable audio alarms. Furthermore, Axis Edge Vault safeguards the device and offers FIPS 140-2 Level 2 certified key storage and operations.

> Reliable thermal detection 24/7

> Five lens alternatives

> Support for AXIS Perimeter Defender

> Built-in cybersecurity with Axis Edge Vault

> Compact, robust, and halogen-free

AXIS Q1971-E Thermal Camera
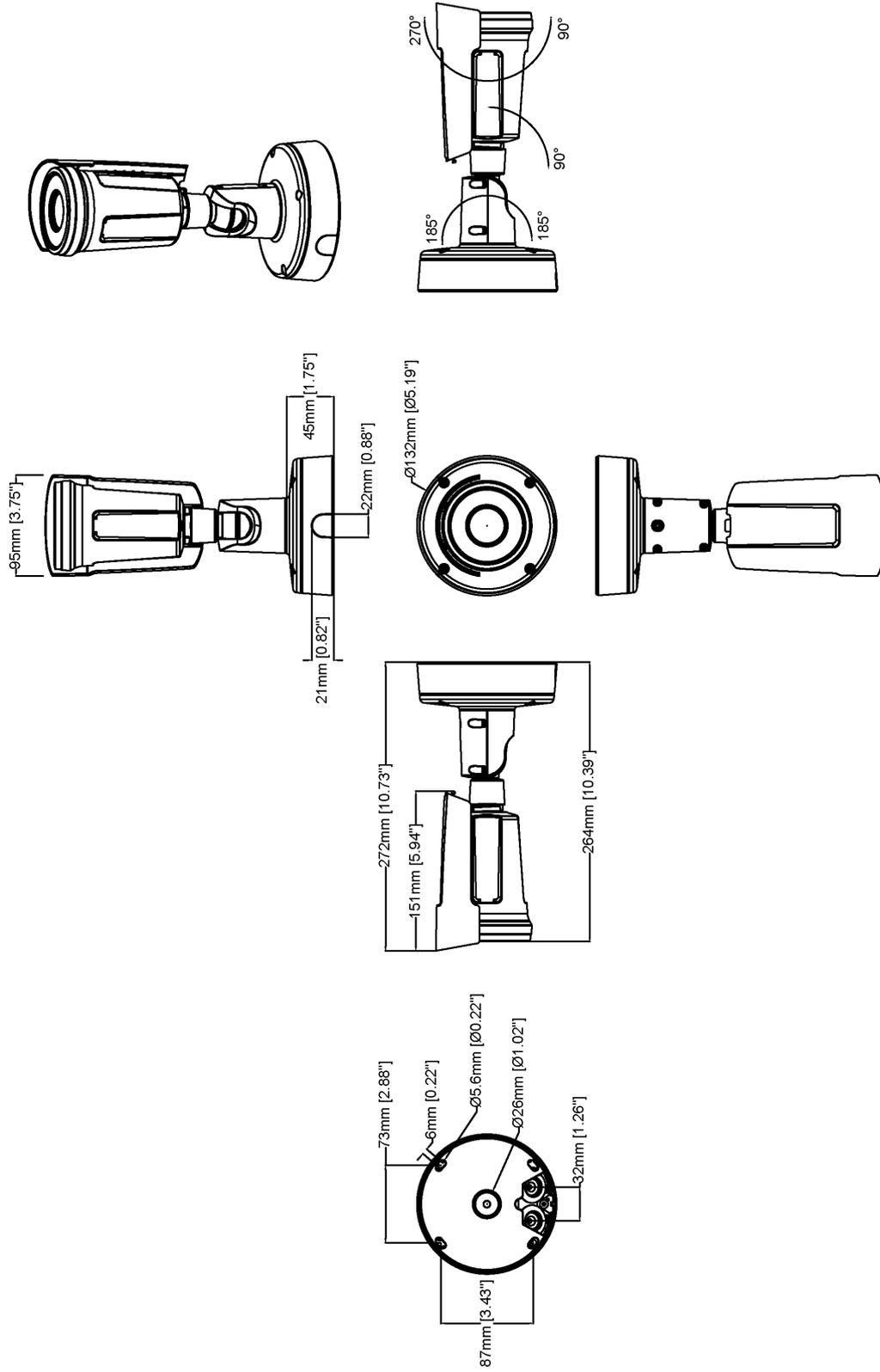
Camera

Variants	AXIS Q1971-E 7 mm AXIS Q1971-E 13 mm AXIS Q1971-E 19 mm AXIS Q1971-E 25 mm AXIS Q1971-E 35 mm
Image sensor	Uncooled microbolometer 384x288 pixels, pixels size: 17 μm. Spectral range: 8-14 μm
Lens	Athermalized **7 mm**, F1.18 Horizontal field of view: 55° Vertical field of view: 41° Near focus distance: 1.2 m (3.9 ft) **13 mm**, F1.0 Horizontal field of view: 29° Vertical field of view: 22° Near focus distance: 4.7 m (15.4 ft) **19 mm**, F1.24 Horizontal field of view: 19° Vertical field of view: 15° Near focus distance: 8.3 m (27.2 ft) **25 mm**, F1.0 Horizontal field of view: 15° Vertical field of view: 11° Near focus distance: 18.2 m (60 ft) **35 mm**, F1.14 Horizontal field of view: 10.5° Vertical field of view: 8° Near focus distance: 31.3 m (103 ft)
Sensitivity	NETD <20 mK @25 °C, F1.0

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 and 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, exposure zones, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, dynamic text and image overlay,polygon privacy mask, electronic image stabilization, thermal palettes
Image processing	Axis Zipstream

Audio

Audio features	Automatic gain control Speaker pairing Spectrum visualizer[b]
Audio streaming	Configurable duplex: Two-way (half duplex, full 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 speaker pairing
Audio encoding	24bit LPCM, AAC-LC 8/16/32/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Opus 8/16/48 kHz Configurable bitrate

Network

Network protocols	IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS[c], HTTP/2, TLS[d], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, NTS, RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP, 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®, metadata and AXIS Camera Application Platform (ACAP); specifications at *axis.com/developer-community*. 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 Camera Station Edge, AXIS Camera Station Pro, AXIS Camera Station 5, and video management software from Axis' partners available at *axis.com/vms*.
Onscreen controls	Electronic image stabilization Video streaming indicator Privacy masks Media clip Heater
Edge-to-edge	Speaker pairing
Event conditions	Audio: audio detection, audio clip playing, audio clip currently playing Device status: above/below/within operating temperature, IP address removed, new IP address, network lost, system ready, ring power overcurrent protection, live stream active, casing open, fan failure, shock detected Digital audio input status Edge storage: recording ongoing, storage disruption, storage health issues detected I/O: digital input, manual trigger, virtual input MQTT: stateless Scheduled and recurring: schedule Video: average bitrate degradation, tampering
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, 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, 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 **Canada:** ICES(A)/NMB(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, IS 13252

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[e], 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	ETSI EN 303 645, BSI IT Security Label

Cybersecurity

Edge security	**Software:** Signed firmware, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 OpenID Authorization Code Flow for centralized ADFS account management, 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, PEAP-MSCHAPv2)[f], IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS[g], TLS v1.2/v1.3[h], 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* To read more about Axis cybersecurity support, go to *axis.com/cybersecurity*

General

Casing	IP66/IP67-, NEMA 4X- and IK10-rated[i] Aluminum and polycarbonate (PC), 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 3.5 W, max 12.95 W 12–28 V DC, typical 3.6 W, max 12.95 W
Connectors	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE Audio: 3.5 mm mic/line in Power: DC input, terminal block I/O: Terminal block for 1 supervised alarm input and 1 output (12 V DC output, max. load 50 mA)
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	For the overall product dimensions, see the dimension drawing in this datasheet.

	Effective Projected Area (EPA): 0.022 m^2 (0.24 ft^2)
Weight	1.4 kg (3.1 lb)
Box content	Camera, installation guide, drill template, TORX® L-keys, RESISTORX® L-key, terminal block connector, 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 AXIS T8415 Wireless Installation Tool AXIS Surveillance Cards For more accessories, go to *axis.com/products/axis-q1971-e#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-q1971-e#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. For SCIP UUID, see *echa.europa.eu*
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. *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).*
e. *Excluding front window*
f. *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).*
g. *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).*
h. *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).*
i. *Excluding front window*

Dimension drawing

AXIS Q1971-E Thermal Camera

95mm [3.75"]
45mm [1.75"]
22mm [0.88"]
21mm [0.82"]
Ø132mm [Ø5.19"]
272mm [10.73"]
151mm [5.94"]
264mm [10.39"]
73mm [2.88"]
6mm [0.22"]
Ø5.6mm [Ø0.22"]
Ø26mm [Ø1.02"]
32mm [1.26"]
87mm [3.43"]

270°
90°
90°
185°
185°

Revision	v.01	Revision date	2024-05-16
Paper size	A4	Release date	2024-05-16
Created by	MS	Scale	1:5

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Highlighted capabilities

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*.

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.

Thermal palettes

A mode that allows the user to select a color range to show relative temperature differences in a scene. 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.

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.

For more information, see *axis.com/glossary*

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