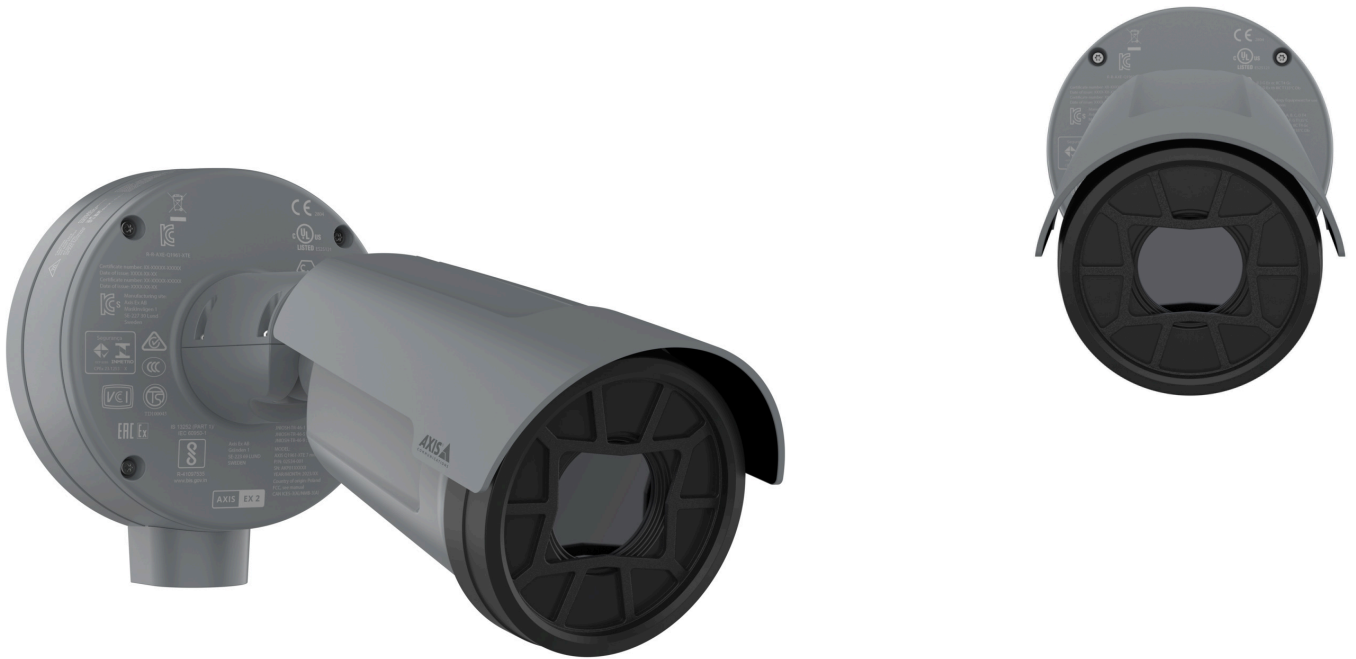# AXIS Q1961-XTE Explosion-Protected Thermal Camera
Class/Division 2- and Zone 2-certified thermometric camera

Designed and certified for Zone and Division 2 hazardous areas, this compact and lightweight explosion-protected camera can remotely monitor temperatures from –40 °C to 350 °C (–40 °F to 660 °F). You'll receive a notification if the temperature exceeds or falls below a set threshold. It will also send a notification if the temperature increases or decreases too rapidly. It supports up to 10 configurable polygonal detection areas, and spot temperature reading shows the exact temperature in specific areas. Furthermore, Axis Edge Vault, a hardware-based cybersecurity platform, safeguards the device and protects sensitive information from unauthorized access.

> **Thermometric for remote temperature measuring**

> **Configurable temperature monitoring areas**

> **Spot temperature reading**

> **Worldwide hazardous area certifications**

> **Built-in cybersecurity with Axis Edge Vault**

AXIS Q1961-XTE Explosion-Protected Thermal Camera

Camera

Variants	AXIS Q1961-XTE 7 mm 8.3 fps AXIS Q1961-XTE 7 mm 30 fps
Image sensor	Uncooled microbolometer 384x288 pixels, pixel size 17 µm. Spectral range: 8-14 µm
Lens	Athermalized Horizontal field of view: 55°, F1.18 Minimum focus distance: 1.3 m (4.3 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 Speaker pairing Spectrum visualizer[b]
Audio streaming	Configurable duplex: One-way (simplex, half duplex)
Audio input	Input through speaker pairing 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 through 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[d], 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*. 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 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	ATEC, IECEx, cULus
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) **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, NEMA 250 Type 4X
Network	NIST SP500-267
Cybersecurity	ETSI EN 303 645, BSI IT Security Label, FIPS 140
Explosion	IEC/EN 60079-0, IEC/EN 60079-7, IEC/EN 60079-31, UL 60079-0, UL 60079-7, UL 60079-31, CSA C22.2 No. 60079-0,

	CSA C22.2 No. 60079-7, CSA C22.2 No. 60079-31, CSA C22.2 No. 213-17, UL121201
Certifications	**ATEX:** II 3 G Ex ec IIC T4 Gc II 2 D Ex tb IIIC T135°C Db **Certificate:** UL 22 ATEX 2732X, UL 22 ATEX 2888X **IECEx:** Ex ec IIC T4 Gc EX tb IIIC T135°C Db **Certificate:** ULD 22.0011X **cULus:** Class I Div 2 Group A, B, C, D T4 Class II Div 2 Group F, G T135°C T4 Class III Div 2 Class I Zone 2 AEx ec IIC T4 Gc Zone 21 AEx IIIC T135°C Db **Certificate:** E525121

Cybersecurity

Edge security	**Software:** Signed OS, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 OpenID Authorization Code Flow for centralized ADFS account management, password protection **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

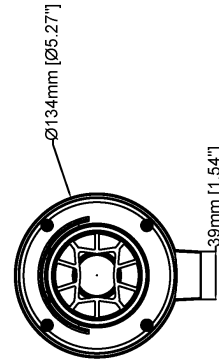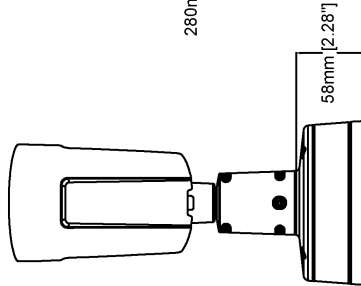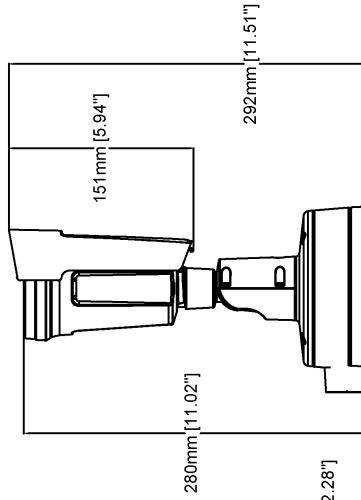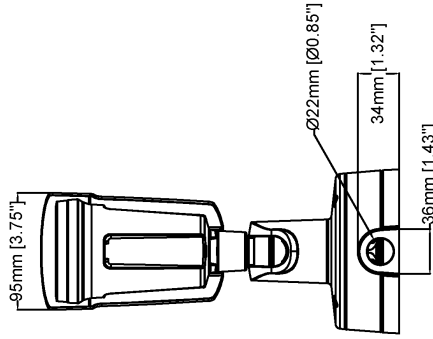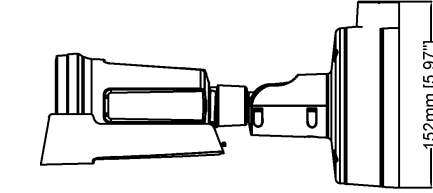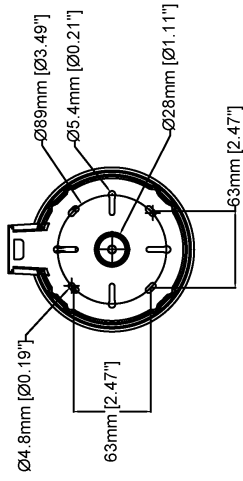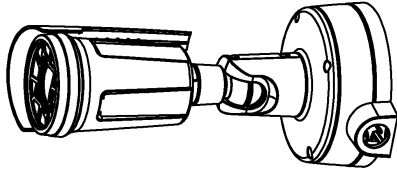|	
Casing	IP66/IP67-, NEMA 4X-, and IK10-rated[i] Polycarbonate blend and aluminum, germanium window Color: gray NCS S 5502-B
Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3 Typical 4.3 W, max 12.95 W 10–28 V DC, typical 4.1 W, max 12.95 W
Connectors	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T 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	-30 °C to 60 °C (-22 °F to 140 °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	1.5 kg (3.3 lb)
Box content	Camera, installation guide, TORX® L-keys, terminal block connectors, connector guard, cable gaskets, owner authentication key
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-xte#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 2015/863 EN IEC 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. *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

Ø89mm [Ø3.49"]
Ø5.4mm [Ø0.21"]
Ø28mm [Ø1.11"]
63mm [2.47"]
Ø4.8mm [Ø0.19"]
63mm [2.47"]

152mm [5.97"]

Ø222mm [Ø0.85"]
34mm [1.32"]
36mm [1.43"]
95mm [3.75"]

Ø134mm [Ø5.27"]
39mm [1.54"]

151mm [5.94"]
292mm [11.51"]
280mm [11.02"]
58mm [2.28"]

AXIS Q1961-XTE Explosion-Protected Thermal Camera

Revision	v.01	Revision date	2023-12-28
Paper size	A4	Release date	2023-12-28
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*.

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.

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.

Zone/Division 2

Hazardous areas are divided into zones or divisions, defined by the probability that hazardous material will be present in an ignitable concentration in the surrounding atmosphere.

Zone/Division 2 areas are less hazardous than Zone/Division 1 areas, and explosions are not likely to occur during normal operations.

With 'Ex e' or 'non-incendive' protection, cameras certified for Zone/Division 2 offer increased safety. This explosion-protection approach ensures that no arcs and sparks can appear, and that excessive temperatures can't be reached, during normal operation of electrical equipment. As a result, electrical equipment using 'Ex e' protection can't ignite gas or dust in the surrounding potentially combustible environment.

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

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