AXIS Q2112-E Thermal Camera

Outstanding high-resolution detection and verification

Ideal for perimeter security, this high-resolution thermal camera offers reliable detection and verification 24/7 all while protecting privacy. It features a powerful sensor with extremely high thermal sensitivity for a low false alarm rate. And there's a choice of six lens options. It can be mounted on a positioning unit for 360° unobstructed views. AXIS Perimeter Defender is available for enhanced protection. Built on a powerful platform, it's possible to add third-party analytics. With edge-to-edge technology, you can easily integrate and trigger other devices such as a network speaker. Furthermore, Axis Edge Vault safeguards your device and protects sensitive information from unauthorized access.

- > High-resolution detection, low false alarm rate
- > Lens options available
- > Flexible mounting options
- > Support for powerful analytics
- > Built-in cybersecurity with Axis Edge Vault

AXIS Q2112-E Thermal Camera

Camera

Variants
AXIS Q2112-E 10 mm
AXIS Q2112-E 19 mm
AXIS Q2112-E 25 mm
AXIS Q2112-E 35 mm
AXIS Q2112-E 60 mm
AXIS Q2112-E 100 mm

Image sensor
Uncooled microbolometer 640x480 pixels, pixel size 17 µm.
Spectral range: 8-14 µm

Lens
Athermalized
10 mm, F1.2
Horizontal field of view: 63°
Vertical field of view: 46°
Near focus distance: 2.8 m (9.2 ft)
19 mm, F1.0
Horizontal field of view: 31°
Vertical field of view: 24°
Near focus distance: 8.5 m (28 ft)
25 mm, F1.0
Horizontal field of view: 24°
Vertical field of view: 18.5°
Near focus distance: 18.5 m (61 ft)
35 mm, F1.2
Horizontal field of view: 17°
Vertical field of view: 13°
Near focus distance: 33 m (108 ft)
60 mm, F1.2
Horizontal field of view: 10°
Vertical field of view: 7.7°
Near focus distance: 84 m (276 ft)
100 mm, F1.4
Horizontal field of view: 6.2°
Vertical field of view: 4.6°
Near focus distance: 190 m (623 ft)

Sensitivity
NETD <20 mK @25 °C, F1.0

Pan/Tilt
Supporting guard tour with up to 256 preset positions (positioning unit sold separately)

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 640x480. Image can be scaled up to 800x600.

Frame rate
Up to 8.3 fps or 30 fps depending on model

Video streaming
Up to 20 unique and configurable video streams[1]
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

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.*

Audio

Features
AGC automatic gain control
Network speaker pairing
Spectrum visualizer[2]

Streaming
Configurable duplex:
Two-way (half duplex, full duplex)

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

Output
Output via network speaker pairing
Line output

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[3], HTTP/2, TLS[3], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, PTP, NTS, RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, 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
Video streaming indicator
Privacy masks
Media clip
Heater

Edge-to-edge
Speaker pairing

Event conditions
Audio: audio detection, audio clip playing
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, casing open
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

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
Status LED: flash
Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share, and email

Built-in installation aids
Pixel counter, level grid

2. *Feature available with ACAP*
3. *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).*

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, VCCI, RCM

Supply chain
TAA compliant

EMC
CISPR 35, CISPR 32 Class A, EN 50121-4, EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2
Australia/New Zealand: RCM AS/NZS CISPR 32 Class A
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

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[4], ISO 21207 Method B , MIL-STD-810H (Method 501.7, 502.7, 505.7, 506.6, 507.6, 509.7, 510.7, 512.6, 514.8, 516.8, 521.4)[5], 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, FIPS-140

Cybersecurity

Edge security
Software: Signed firmware, 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)
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)[6], IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS[6], TLS v1.2/v1.3[6], 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[4]
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*.

Power
Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 2 Class 4
Typical 5.2 W, max 25.5 W
10–28 V DC, typical 4.6 W, max 25.5 W

4. *Excluding front window*
5. *514.8 and 516.8 only applicable to 60mm lens variant.*
6. *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).*

Connectors
Network: RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE
I/O: Terminal block for two supervised and two unsupervised configurable inputs / digital outputs (12 V DC output, max. load 50 mA)
Audio: 3.5 mm mic/line in, 3.5 mm line out
Serial communication: RS485/RS422, 2 pcs, 2 pos, full duplex, terminal block
Power: DC input, terminal block

Storage
Support for microSD/microSDHC/microSDXC card
Support for SD card encryption (AES-XTS-Plain64 256bit)
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): 0.05 m^2 (0.48 ft^2)

Weight
10 mm, 19 mm, 25 mm, 35 mm: 3.3 kg (7.3 lb)
60 mm, 100 mm: 3.5 kg (7.7 lb)

Box content
Camera, installation guide, terminal block connectors, connector guard, cable gaskets, owner authentication key

Optional accessories
AXIS TQ1818-E Positioning Unit, AXIS TQ1003-E Wall Mount
For more accessories, go to *axis.com/products/axis-q2112-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-q2112-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.

Materials
Renewable carbon-based plastic content: 7% (recycled: 2%, bio-based: 5%)[7]
Renewable carbon-based plastic content: 8% (recycled: 2%, bio-based: 6%)[8]
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*

7. *Applicable to 10 mm, 19 mm, 25 mm, and 35 mm.*
8. *Applicable to 60 mm and 100 mm.*

Detect, Recognize, Identify (DRI)

AXIS Q2112-E (10 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 291 m (954 ft) Vehicle: 890 m (2920 ft)
Recognize	6 pixels	Human: 73 m (240 ft) Vehicle: 223 m (731 ft)
Identify	12 pixels	Human: 36 m (120 ft) Vehicle: 112 m (367 ft)

AXIS Q2112-E (19 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 559 m (1834 ft) Vehicle: 1596 m (5235 ft)
Recognize	6 pixels	Human: 140 m (460 ft) Vehicle: 430 m (1410 ft)
Identify	12 pixels	Human: 70 m (230 ft) Vehicle: 215 m (705 ft)

AXIS Q2112-E (25 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 735 m (2410 ft) Vehicle: 2100 m (6888 ft)
Recognize	6 pixels	Human: 184 m (604 ft) Vehicle: 566 m (1856 ft)
Identify	12 pixels	Human: 91 m (298 ft) Vehicle: 283 m (928 ft)

AXIS Q2112-E (35 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 1079 m (3539 ft) Vehicle: 3307 m (10850 ft)
Recognize	6 pixels	Human: 270 m (886 ft) Vehicle: 827 m (2710 ft)
Identify	12 pixels	Human: 135 m (443 ft) Vehicle: 413 m (1355 ft)

AXIS Q2112-E (60 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 1833 m (6012 ft) Vehicle: 5623 m (18440 ft)
Recognize	6 pixels	Human: 458 m (1500 ft) Vehicle: 1406 m (4611 ft)
Identify	12 pixels	Human: 229 m (751 ft) Vehicle: 703 m (2305 ft)

AXIS Q2112-E (100 mm lens)		
	Definition	Distance
Detect	1.5 pixels	Human: 2941 m (9646 ft) Vehicle: 8403 m (27560 ft)
Recognize	6 pixels	Human: 735 m (2410 ft) Vehicle: 2262 m (7419 ft)
Identify	12 pixels	Human: 368 m (1210 ft) Vehicle: 1131 m (3710 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.