

# AXIS Q1809-LE Bullet Camera

All-in-one 41 MP camera for extreme detail

Built on a dual Axis system-on-chip, this all-in-one, outdoor-ready bullet camera delivers superior 41 MP resolution with extreme detail over great distances and extremely high pixel density. It features a 4/3" image sensor, a tele (50 – 150 mm) custom-made Canon lens. Enclosed in a robust aluminum casing, it includes a mounting arm for easy installation. Plus, a spacious back box ensures secure cable management. Axis Edge Vault, a hardware-based cybersecurity platform, safeguards the device and offers FIPS 140-3 Level 3 certified secure key storage and operations. Furthermore, PoE out lets you connect and power another device without additional cabling.

- > **Out-of-the-box and outdoor-ready**
- > **Superior image quality in 8K**
- > **High light-sensitive 4/3" sensor**
- > **Extreme detail at great distances**
- > **Built-in cybersecurity with Axis Edge Vault**



# AXIS Q1809-LE Bullet Camera

<b>Camera</b>	
<b>Variants</b>	AXIS Q1809-LE 150 mm
<b>Image sensor</b>	4/3" progressive scan RGB CMOS Pixel size 2.315 µm
<b>Lens</b>	Varifocal, 50–150 mm, F4.0 8K Horizontal field of view: 21°–7° Vertical field of view: 12°–4° 41 MP Horizontal field of view: 20°–6.6° Vertical field of view: 15°–5° Minimum focus distance: 5 m (16.4 ft) Remote zoom and focus, P-Iris control
<b>Day and night</b>	Automatically removable IR-cut filter in day mode and IR-pass filter 800–900 nm in night mode
<b>Minimum illumination</b>	Color: 0.2 lux at 50 IRE, F4.0 B/W: 0.04 lux at 50 IRE, F4.0 0 lux with IR illumination on
<b>Shutter speed</b>	4:3: 1/10500 s to 2 s 16:9: 1/15500 s to 2 s
<b>Camera angle adjustment</b>	Pan ±180°, tilt 0 to -90°, roll -90 to 270°
<b>System on chip (SoC)</b>	
<b>Model</b>	ARTPEC-8 (x2)
<b>Memory</b>	4096 MB RAM (x2), 8192 MB Flash
<b>Compute capabilities</b>	Deep learning processing unit (DLPU)
<b>Video</b>	
<b>Video compression</b>	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG
<b>Resolution</b>	4:3: 7424x5568 16:9: 7680x4320 21:9: 7680x3240
<b>Frame rate</b>	Up to 30 fps (50/60 Hz) in 8K mode Up to 15 fps (50/60 Hz) in 41 MP mode
<b>Video streaming</b>	Up to 20 unique and configurable video streams <sup>a</sup> Axis Zipstream technology in H.264 and H.265 Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265 Low latency mode Video streaming indicator
<b>Signal-to-noise ratio</b>	>55 dB
<b>WDR</b>	Dynamic contrast
<b>Multi-view streaming</b>	Up to 8 individually cropped out view areas
<b>Noise reduction</b>	Spatial filter (2D noise reduction) Temporal filter (3D noise reduction)
<b>Image settings</b>	Saturation, contrast, brightness, sharpness, white balance, day/night threshold, local contrast, tone mapping, exposure mode, exposure zones, defog, barrel distortion correction, compression, mirroring, text and image overlay, dynamic text and image overlay, privacy masks, polygon privacy mask Scene profiles: forensic, vivid
<b>Image processing</b>	Axis Zipstream, Lightfinder, OptimizedIR
<b>Pan/Tilt/Zoom</b>	Digital PTZ
<b>Audio</b>	
<b>Audio features</b>	Automatic gain control Spectrum visualizer <sup>b</sup> 10-band graphic equalizer for audio input
<b>Audio input</b>	Input for external unbalanced microphone, optional 5 V microphone power Digital input, optional 12 V ring power Unbalanced line input Microphone pairing
<b>Audio output</b>	Output through speaker pairing
<b>Audio encoding</b>	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 bitrate
<b>Network</b>	
<b>Network protocols</b>	IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPSC, HTTP/2, TLS <sup>c</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, 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)
<b>System integration</b>	
<b>Application Programming Interface</b>	Open API for software integration, including VAPIX <sup>®</sup> , metadata and AXIS Camera Application Platform (ACAP); specifications at <a href="https://axis.com/developer-community">axis.com/developer-community</a> . ACAP includes Native SDK and Computer Vision SDK. 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 <a href="https://onvif.org">onvif.org</a>
<b>Video management systems</b>	Compatible with AXIS Companion, AXIS Camera Station, video management software from Axis' Application Development Partners available at <a href="https://axis.com/vms">axis.com/vms</a>
<b>Onscreen controls</b>	Autofocus Image stabilization Day/night shift Defog Video streaming indicator IR illumination Privacy masks Media clip
<b>Edge-to-edge</b>	Microphone pairing Speaker pairing
<b>Event conditions</b>	Device status: above/below operating temperature, IP address blocked, IP address removed, live stream active, network lost, new IP address, ring power overcurrent protection, system ready, within operating temperature Digital audio: digital signal contains Axis metadata, digital signal has invalid sample rate, digital signal missing, digital signal okay Edge storage: recording ongoing, storage disruption, storage health issues detected I/O: digital input is active, manual trigger, virtual input MQTT: stateless Scheduled and recurring: schedule Video: average bitrate degradation, day-night mode, tampering
<b>Event actions</b>	Day-night mode Defog I/O Illumination Images: FTP, HTTP, HTTPS, SFTP, email and network MQTT Notification: HTTP, HTTPS, TCP and email Overlay text Recordings Security: erase configuration SNMP trap messages Video clips: FTP, HTTP, HTTPS, SFTP, email and network
<b>Built-in installation aids</b>	Pixel counter, remote zoom and focus, level grid, leveling assistant
<b>Analytics</b>	
<b>Applications</b>	Included AXIS Video Motion Detection, active tampering alarm, audio detection Supported Support for AXIS Camera Application Platform enabling installation of third-party applications, see <a href="https://axis.com/acap">axis.com/acap</a>
<b>Approvals</b>	
<b>Product markings</b>	CSA, UL/cUL, BIS, CE, KC, EAC, VCCI, RCM
<b>Supply chain</b>	TAA compliant
<b>EMC</b>	CISPR 35, CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-6-1, EN 61000-6-2 Australia/New Zealand: RCM AS/NZS CISPR 32 Class A Canada: ICES(A)/NMB(A)

	<p>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</p>
<b>Safety</b>	CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3, IEC/EN 62471 risk group 2
<b>Environment</b>	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 body, IK08 glass, NEMA 250 Type 4X
<b>Network</b>	NIST SP500-267
<b>Cybersecurity</b>	ETSI EN 303 645, FIPS 140
<b>Cybersecurity</b>	
<b>Edge security</b>	<p><b>Software:</b> Signed OS, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 OpenID Authorization Code Flow for centralized ADFS account management, password protection</p> <p><b>Hardware:</b> Axis Edge Vault cybersecurity platform Secure element (CC EAL 6+, FIPS 140-3 Level 3), system-on-chip security (TEE), Axis device ID, secure keystore, signed video, secure boot, encrypted filesystem (AES-XTS-Plain64 256bit)</p>
<b>Network security</b>	IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2) <sup>c</sup> , IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS <sup>c</sup> , TLS v1.2/v1.3 <sup>c</sup> , Network Time Security (NTS), X.509 Certificate PKI, host-based firewall
<b>Documentation</b>	<p><i>AXIS OS Hardening Guide</i>  <i>Axis Vulnerability Management Policy</i>  <i>Axis Security Development Model</i>            AXIS OS Software Bill of Material (SBOM)            To download documents, go to <a href="https://axis.com/support/cybersecurity/resources">axis.com/support/cybersecurity/resources</a>            To read more about Axis cybersecurity support, go to <a href="https://axis.com/cybersecurity">axis.com/cybersecurity</a></p>
<b>General</b>	
<b>Casing</b>	<p>IP66-, IP67-, and NEMA 4X-rated            IK10 impact-resistant aluminum enclosure with integrated dehumidifying membranes, IK08 impact-resistant glass front window, weathershield with black anti-glare coating            Color: white NCS S 1002-B, black NCS S 9000-N            For repainting instructions, go to the product's support page. For information about the impact on warranty, go to <a href="https://axis.com/warranty-implication-when-repainting">axis.com/warranty-implication-when-repainting</a>.</p>
<b>Power</b>	<p>Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4, typical 18.9 W, max 25.5 W            Power over Ethernet (PoE) IEEE 802.3bt Type 3 Class 6, typical 18.9 W, max 51 W            Midspan 60 W, IEEE 802.3bt Type 3 Class 6, required for PoE out            IEEE 802.3at Type 2 Class 4 (30 W) to a second device            10–28 V DC, typical 17.6 W, max 35 W            20–24 V AC, typical 25 VA, max 33 VA            Features: power profiles, power meter</p>
<b>Connectors</b>	<p>Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE, RJ45 1000BASE-T PoE output to power an external PoE device            I/O: 4-pin 2.5 mm terminal block for 1 alarm input and 1 output            Audio: 3.5 mm mic/line in            Power: DC input</p>
<b>IR illumination</b>	OptimizedIR with power-efficient, long-life 850 nm IR LEDs

	Range of reach 100 m (328.1 ft) or more depending on the scene
<b>Storage</b>	<p>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 <a href="https://axis.com">axis.com</a></p>
<b>Operating conditions</b>	<p>Temperature with 30 W: -20 °C to 55 °C (4 °F to 131 °F)            Temperature with 60 W: -40 °C to 55 °C (-40 °F to 131 °F)            Maximum temperature according to NEMA TS 2 (2.2.7.3 - 2.2.7.7): 74 °C (165 °F)            Humidity: 10–100% RH (condensing)</p>
<b>Storage conditions</b>	<p>Temperature: -40 °C to 65 °C (-40 °F to 149 °F)            Humidity: 5–95% RH (non-condensing)</p>
<b>Dimensions</b>	<p>For the overall product dimensions, see the dimension drawing in this datasheet.            Effective Projected Area (EPA): 0.0478 m<sup>2</sup> (0.51 ft<sup>2</sup>)</p>
<b>Weight</b>	3.2 kg (7.05 lb)
<b>Box content</b>	Camera, installation guide, terminal block connector, RJ45 cable, connector guard, cable gaskets, owner authentication key
<b>Optional accessories</b>	<p>AXIS T8415 Wireless Installation Tool            AXIS Surveillance Cards            For more accessories, go to <a href="https://axis.com/products/axis-q1809-le#accessories">axis.com/products/axis-q1809-le#accessories</a></p>
<b>System tools</b>	<p>AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator            Available at <a href="https://axis.com">axis.com</a></p>
<b>Languages</b>	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese
<b>Warranty</b>	5-year warranty, see <a href="https://axis.com/warranty">axis.com/warranty</a>
<b>Part numbers</b>	Available at <a href="https://axis.com/products/axis-q1809-le#part-numbers">axis.com/products/axis-q1809-le#part-numbers</a>
<b>Sustainability</b>	
<b>Substance control</b>	<p>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, and standard EN IEC 63000:2018            REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see <a href="https://echa.europa.eu">echa.europa.eu</a></p>
<b>Materials</b>	<p>Renewable carbon-based plastic content: 65% (bio-based)            Screened for conflict minerals in accordance with OECD guidelines            To read more about sustainability at Axis, go to <a href="https://axis.com/about-axis/sustainability">axis.com/about-axis/sustainability</a></p>
<b>Environmental responsibility</b>	<p><a href="https://axis.com/environmental-responsibility">axis.com/environmental-responsibility</a>            Axis Communications is a signatory of the UN Global Compact, read more at <a href="https://unglobalcompact.org">unglobalcompact.org</a></p>
<p>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. (<a href="https://openssl.org">openssl.org</a>), and cryptographic software written by Eric Young (<a href="mailto:ey@cryptsoft.com">ey@cryptsoft.com</a>).</p>	

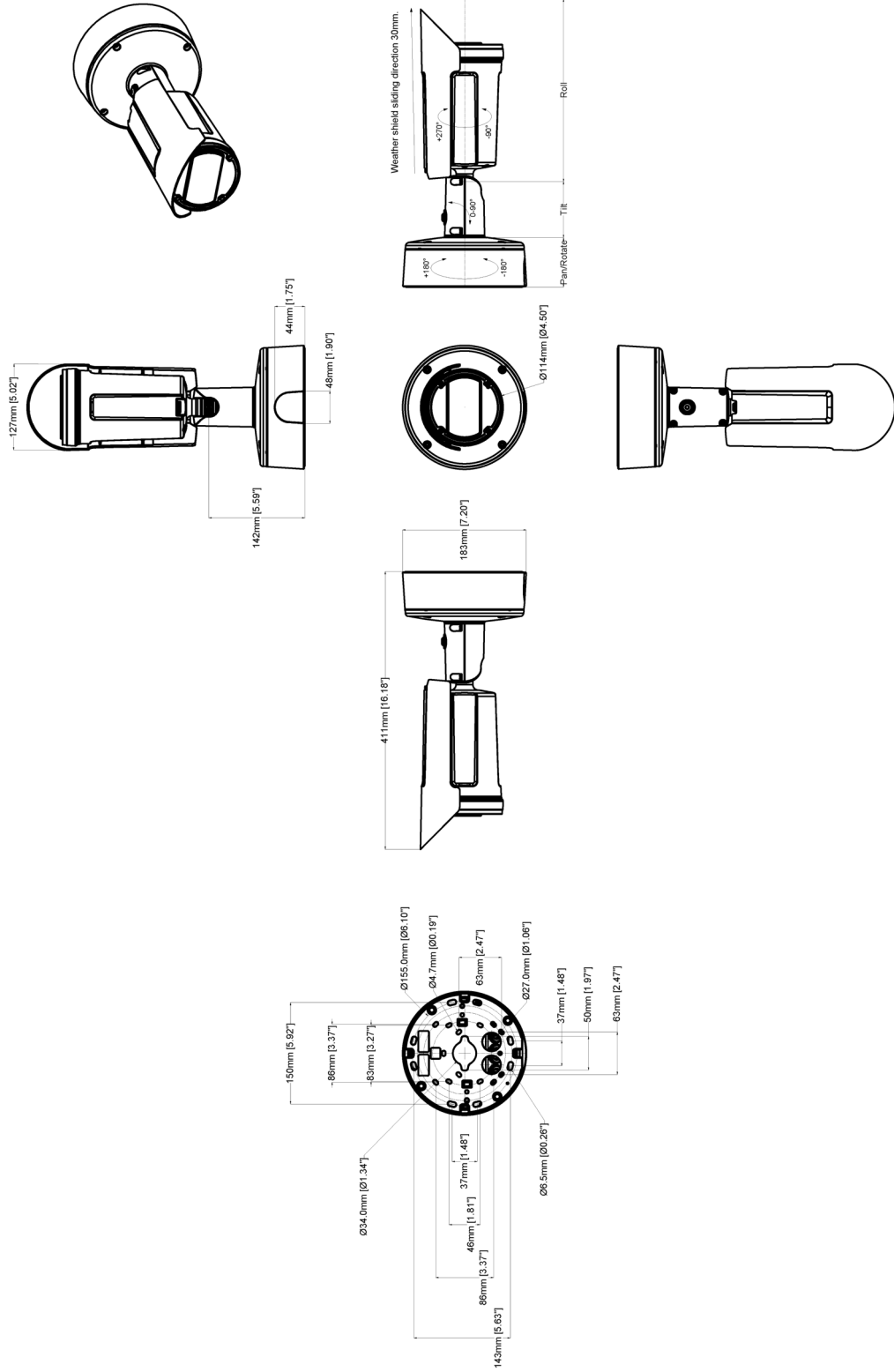
## Detect, Observe, Recognize, Identify (DORI)

Table 1.Q1809-LE 150 mm

	DORI definition	Distance (wide)	Distance (tele)
Detect	25 px/m (8 px/ft)	853.8 m (2800.5 ft)	2551.6 m (8369.2 ft)
Observe	63 px/m (19 px/ft)	338.8 m (1111.3 ft)	1012.6 m (3321.3 ft)
Recognize	125 px/m (38 px/ft)	170.8 m (560.2 ft)	510.2 m (1673.5 ft)
Identify	250 px/m (76 px/ft)	85.4 m (280.1 ft)	255.2 m (837.1 ft)

The DORI values are calculated using pixel densities for different use cases as recommended by the EN-62676-4 standard. The calculations use the center of the image as the reference point and consider lens distortion. The possibility to recognize or identify a person or object depends on factors such as object motion, video compression, lighting conditions, and camera focus. Use margins when planning. The pixel density varies across the image, and the calculated values can differ from the distances in the real world.

# Dimension drawings



## AXIS Q1809-LE Bullet Camera 150 mm

Revision	v.01	Revision date	2024-05-15
Paper size	A4	Release date	2024-05-15
Created by	MS	Scale	1:8

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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](https://www.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.

### Lightfinder

The Axis Lightfinder technology delivers high-resolution, full-color video with a minimum of motion blur even in near darkness. Because it strips away noise, Lightfinder makes dark areas in a scene visible and captures details in very low light. Cameras with Lightfinder discern color in low light better than the human eye. In surveillance, color may be the critical factor to identify a person, an object, or a vehicle.

### OptimizedIR

Axis OptimizedIR provides a unique and powerful combination of camera intelligence and sophisticated LED technology, resulting in our most advanced camera-integrated IR solutions for complete darkness. In our pan-tilt-zoom (PTZ) cameras with OptimizedIR, the IR beam automatically adapts and becomes wider or narrower as the camera zooms in and out to make sure that the entire field of view is always evenly illuminated.

### 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](https://www.axis.com/glossary)