

## 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. And a 4/3" image sensor ensures exceptional low-light performance. It's available with a wide lens for open areas or a tele lens for surveillance from a distance. 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**
- > **Wide or tele Canon lens**
- > **Built-in cybersecurity with Axis Edge Vault**



# AXIS Q1809-LE Bullet Camera

## Camera

### Variants

AXIS Q1809-LE  
AXIS Q1809-LE 150 mm

### Image sensor

4/3" progressive scan RGB CMOS  
Pixel size 2.315 µm

### Lens

**24 mm lens:**  
Varifocal, 12-24 mm, F2.0-3.0  
**8K**  
Horizontal field of view: 90°-44°  
Vertical field of view: 49°-25°  
**41 MP**  
Horizontal field of view: 87°-42°  
Vertical field of view: 64°-32°  
Minimum focus distance: 1.5 m (4.9 ft)  
Remote zoom and focus, P-Iris control  
**150 mm lens:**  
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

### Day and night

Automatically removable IR-cut filter in day mode and IR-pass filter 800-900 nm in night mode

### Minimum illumination

**24 mm lens:**  
**Color:** 0.12 lux at 50 IRE, F2.0  
**B/W:** 0.02 lux at 50 IRE, F2.0  
0 lux with IR illumination on  
**150 mm lens:**  
**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

### Shutter speed

**4:3:** 1/10500 s to 2 s  
**16:9:** 1/15500 s to 2 s

### Camera adjustment

Pan ±180°, tilt 0 to -90°, roll -90 to 270°

## System on chip (SoC)

### Model

ARTPEC-8 (x2)

### Memory

4096 MB RAM (x2), 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<sup>(1)</sup>  
Motion JPEG

### Resolution

**4:3:** 7424x5568  
**16:9:** 7680x4320  
**21:9:** 7680x3240

### Frame rate

Up to 30 fps (50/60 Hz) in 8K mode  
Up to 15 fps (50/60 Hz) in 41 MP mode

### Video streaming

Up to 20 unique and configurable video streams<sup>(2)</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

### Signal-to-noise ratio

>55 dB

### WDR

Dynamic contrast

1. Due to the high resolution of AXIS Q1809-LE, H.265 is the recommended encoding format.
2. 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.

## Multi-view streaming

Up to 8 individually cropped out view areas

## Noise reduction

Spatial filter (2D noise reduction)

Temporal filter (3D noise reduction)

## Image settings

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

## Image processing

Axis Zipstream, Lightfinder, OptimizedIR

## Pan/Tilt/Zoom

Digital PTZ

## Audio

### Features

Automatic gain control

Speaker pairing

Spectrum visualizer<sup>(3)</sup>

10-band graphic equalizer for audio input

### Input

Input for external unbalanced microphone, optional 5 V microphone power

Digital input, optional 12 V ring power

Unbalanced line input

Microphone pairing

### Output

Output through speaker pairing

### 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 bitrate

## Network

### Network protocols

IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>(4)</sup>, HTTP/2, TLS<sup>(4)</sup>, 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, NTCIP, 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](https://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](https://onvif.org)

### Video management systems

Compatible with AXIS Camera Station Edge, AXIS Camera Station Pro, and video management software from Axis' partners available at [axis.com/vms](https://axis.com/vms).

### Onscreen controls

Autofocus

Image stabilization

Day/night shift

Defog

Video streaming indicator

IR illumination

Privacy masks

Media clip

### Edge-to-edge

Microphone pairing

Speaker pairing

Siren and light pairing

3. Feature available with ACAP

4. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://openssl.org)), and cryptographic software written by Eric Young ([eyay@cryptsoft.com](mailto:eyay@cryptsoft.com)).

## Event conditions

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

## Event actions

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

## Built-in installation aids

Pixel counter, remote zoom and focus, level grid, leveling assistant

## Analytics

### Applications

#### Included

AXIS Video Motion Detection, active tampering alarm, audio detection

#### Supported

Support for AXIS Camera Application Platform enabling installation of third-party applications, see [axis.com/acap](https://axis.com/acap)

## Approvals

### Product markings

CSA, UL/cUL, CE, KC, EAC, VCCI, RCM

### Supply chain

TAA compliant

## EMC

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)  
**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, IEC/EN 62471 risk group 2, 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 body, IK08 glass, 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 OS, 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 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)

### Network security

IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>(5)</sup>, IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS<sup>(5)</sup>, TLS v1.2/v1.3<sup>(5)</sup>, Network Time Security (NTS), X.509 Certificate PKI, host-based firewall

5. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://openssl.org)), and cryptographic software written by Eric Young ([ey@cryptosoft.com](mailto:ey@cryptosoft.com)).

## 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](https://axis.com/support/cybersecurity/resources)

To read more about Axis cybersecurity support, go to [axis.com/cybersecurity](https://axis.com/cybersecurity)

## General

### Casing

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 [axis.com/warranty-implication-when-repainting](https://axis.com/warranty-implication-when-repainting).

### Power

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

### Connectors

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

### IR illumination

**24 mm lens:** Optimized IR with power-efficient, long-life 850 nm IR LEDs and white LED combo

Range of reach 60 m (197 ft) or more depending on the scene

**150 mm lens:** Optimized IR with power-efficient, long-life 850 nm IR LEDs

Range of reach 100 m (328.1 ft) or more depending on the scene

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

### Operating conditions

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)

Wind load (sustained): 60 m/s (134 mph)

### Storage conditions

Temperature: -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.

**24 mm lens:** Effective Projected Area (EPA): 0.0455 m<sup>2</sup> (0.49 ft<sup>2</sup>)

**150 mm lens:** Effective Projected Area (EPA): 0.0478 m<sup>2</sup> (0.51 ft<sup>2</sup>)

### Weight

**24 mm lens camera:** 3.4 kg (7.50 lb)

**150 mm lens camera:** 3.2 kg (7.05 lb)

### Box content

Camera, installation guide, terminal block connector, RJ45 cable, connector guard, cable gaskets, owner authentication key

### Optional accessories

AXIS T8415 Wireless Installation Tool

AXIS Surveillance Cards

For more accessories, go to [axis.com/products/axis-q1809-le#accessories](https://axis.com/products/axis-q1809-le#accessories)

### System tools

AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator

Available at [axis.com](https://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](https://axis.com/warranty)

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## Part numbers

Available at [axis.com/products/axis-q1809-le#part-numbers](https://axis.com/products/axis-q1809-le#part-numbers)

## Sustainability

### Substance control

PVC free

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 [echa.europa.eu](https://echa.europa.eu)

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### Materials

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 [axis.com/about-axis/sustainability](https://axis.com/about-axis/sustainability)

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### Environmental responsibility

[axis.com/environmental-responsibility](https://axis.com/environmental-responsibility)

Axis Communications is a signatory of the UN Global Compact, read more at [unglobalcompact.org](https://unglobalcompact.org)

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

### **Q1809-LE**

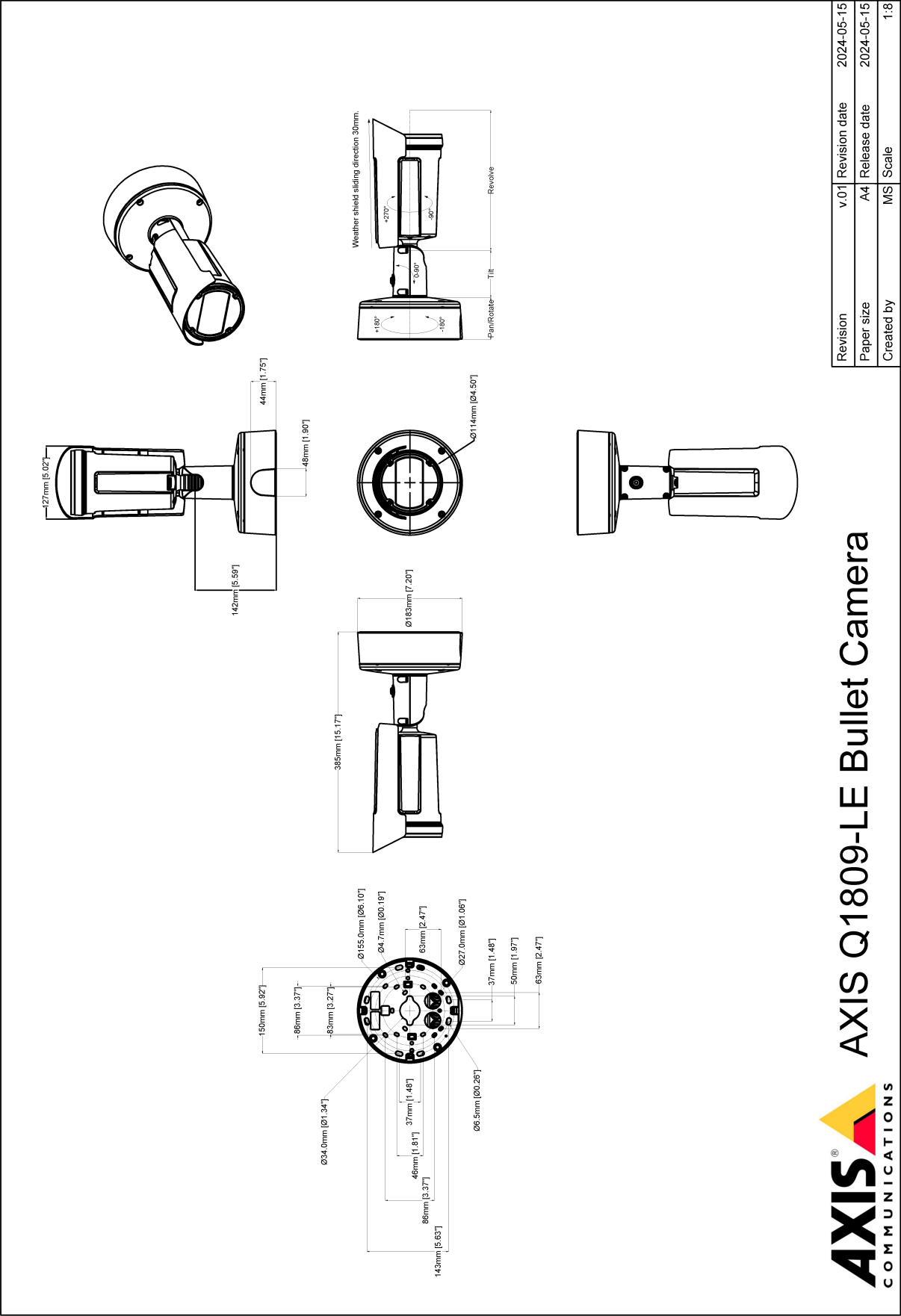
|           | DORI definition     | Distance (wide)    | Distance (tele)     |
|-----------|---------------------|--------------------|---------------------|
| Detect    | 25 px/m (8 px/ft)   | 210.8 m (691.4 ft) | 407.1 m (1335.3 ft) |
| Observe   | 63 px/m (19 px/ft)  | 83.6 m (274.2 ft)  | 161.6 m (530.0 ft)  |
| Recognize | 125 px/m (38 px/ft) | 42.2 m (138.4 ft)  | 81.4 m (267.0 ft)   |
| Identify  | 250 px/m (76 px/ft) | 21.0 m (68.9 ft)   | 40.7 m (133.5 ft)   |

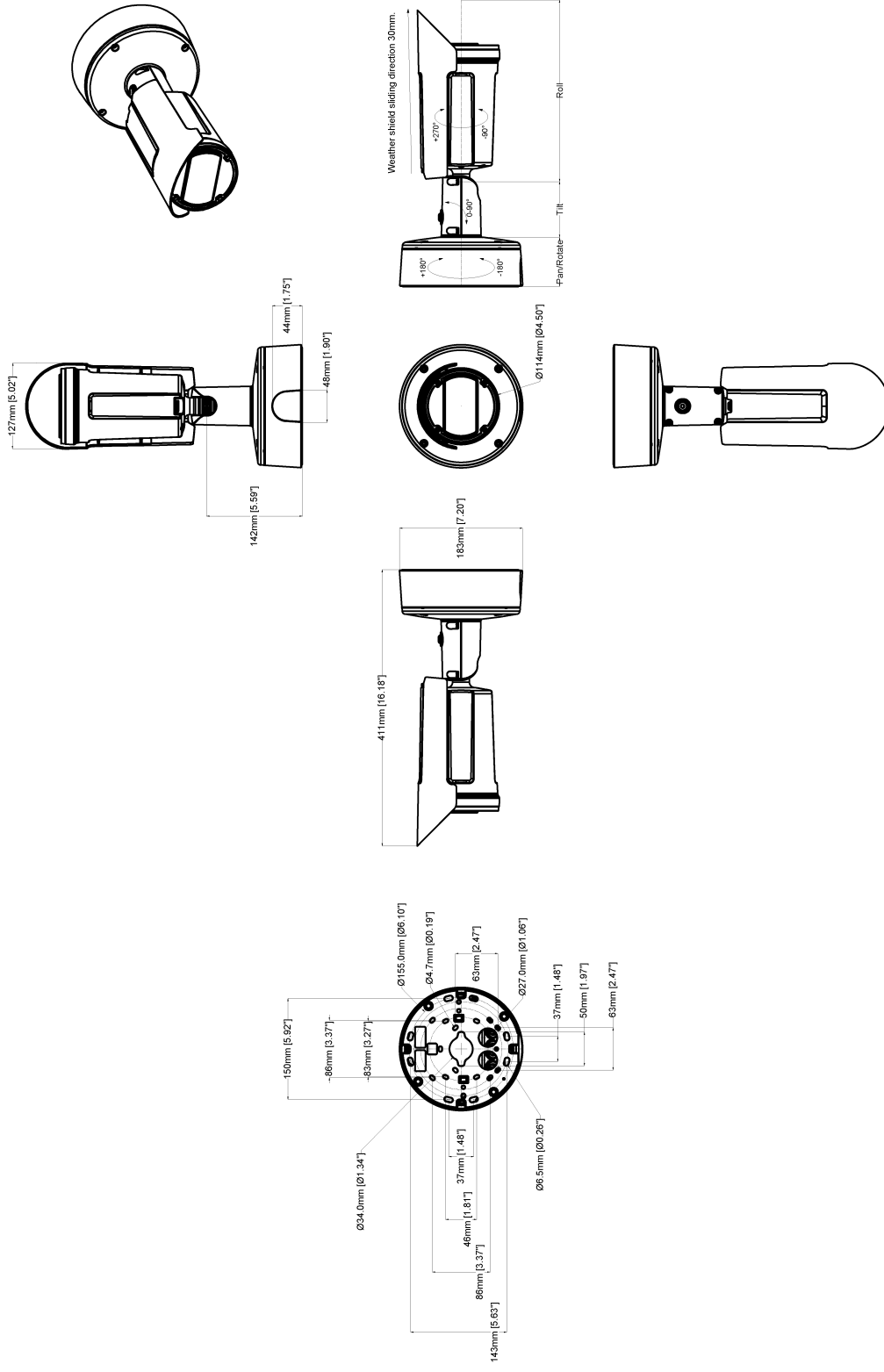
### **Q1809-LE 150 mm**

|           | 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        |

## 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://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://axis.com/glossary)