

# 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	
<b>Variants</b>	AXIS Q1809-LE AXIS Q1809-LE 150 mm
<b>Image sensor</b>	4/3" progressive scan RGB CMOS Pixel size 2.315 µm
<b>Lens</b>	<b>24 mm lens:</b> 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 <b>150 mm 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>	<b>24 mm lens:</b> 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 <b>150 mm lens:</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 adjustment</b>	Pan ±180°, tilt 0 to -90°, roll -90 to 270°
System on chip (SoC)	
<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)
Video	
<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 <sup>a</sup> 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>b</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
Audio	
<b>Audio features</b>	Automatic gain control Speaker pairing Spectrum visualizer <sup>c</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
Network	
<b>Network protocols</b>	IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS <sup>d</sup> , HTTP/2, TLS <sup>d</sup> , QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP <sup>e</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)
System integration	
<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> . 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 Camera Station Edge, AXIS Camera Station Pro, AXIS Camera Station 5, and video management software from Axis' 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	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
<b>Analytics</b>		
<b>Applications</b>	<b>Included</b> AXIS Video Motion Detection, active tampering alarm, audio detection <b>Supported</b> Support for AXIS Camera Application Platform enabling installation of third-party applications, see <a href="http://axis.com/acap">axis.com/acap</a>	<b>IR illumination</b> <b>24 mm lens:</b> OptimizedIR 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 <b>150 mm lens:</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>Approvals</b>		
<b>Product markings</b>	CSA, UL/cUL, CE, KC, EAC, VCCI, RCM	<b>Storage</b> 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="http://axis.com">axis.com</a>
<b>Supply chain</b>	TAA compliant	<b>Operating conditions</b> 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)
<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 <b>Australia/New Zealand:</b> RCM AS/NZS CISPR 32 Class A <b>Canada:</b> ICES(A)/NMB(A) <b>Japan:</b> VCCI Class A <b>Korea:</b> KS C 9835, KS C 9832 Class A <b>USA:</b> FCC Part 15 Subpart B Class A <b>Railway:</b> IEC 62236-4	<b>Storage conditions</b> Temperature: -40 °C to 65 °C (-40 °F to 149 °F) Humidity: 5–95% RH (non-condensing)
<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, IS 13252	<b>Dimensions</b> For the overall product dimensions, see the dimension drawing in this datasheet. <b>24 mm lens:</b> Effective Projected Area (EPA): 0.0455 m <sup>2</sup> (0.49 ft <sup>2</sup> ) <b>150 mm lens:</b> Effective Projected Area (EPA): 0.0478 m <sup>2</sup> (0.51 ft <sup>2</sup> )
<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, NEMA TS 2 (2.2.7-2.2.9)	<b>Weight</b> <b>24 mm lens camera:</b> 3.4 kg (7.50 lb) <b>150 mm lens camera:</b> 3.2 kg (7.05 lb)
<b>Network</b>	NIST SP500-267	<b>Box content</b> Camera, installation guide, terminal block connector, RJ45 cable, connector guard, cable gaskets, owner authentication key
<b>Cybersecurity</b>	ETSI EN 303 645, FIPS 140	<b>Optional accessories</b> AXIS T8415 Wireless Installation Tool AXIS Surveillance Cards For more accessories, go to <a href="http://axis.com/products/axis-q1809-le#accessories">axis.com/products/axis-q1809-le#accessories</a>
<b>Cybersecurity</b>		
<b>Edge security</b>	<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 <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)	<b>System tools</b> AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator Available at <a href="http://axis.com">axis.com</a>
<b>Network security</b>	IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2) <sup>d</sup> , IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS <sup>d</sup> , TLS v1.2/v1.3 <sup>d</sup> , Network Time Security (NTS), X.509 Certificate PKI, host-based firewall	<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>Documentation</b>	<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="http://axis.com/support/cybersecurity/resources">axis.com/support/cybersecurity/resources</a> To read more about Axis cybersecurity support, go to <a href="http://axis.com/cybersecurity">axis.com/cybersecurity</a>	<b>Warranty</b> 5-year warranty, see <a href="http://axis.com/warranty">axis.com/warranty</a>
<b>General</b>		
<b>Casing</b>	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="http://axis.com/warranty-implication-when-repainting">axis.com/warranty-implication-when-repainting</a> .	<b>Part numbers</b> Available at <a href="http://axis.com/products/axis-q1809-le#part-numbers">axis.com/products/axis-q1809-le#part-numbers</a>
<b>Power</b>	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	<b>Sustainability</b>
<b>Connectors</b>	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE, RJ45 1000BASE-T PoE output to power an external PoE device	<b>Substance control</b> 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="http://echa.europa.eu">echa.europa.eu</a>
		<b>Materials</b> 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="http://axis.com/about-axis/sustainability">axis.com/about-axis/sustainability</a>
		<b>Environmental responsibility</b> <a href="http://axis.com/environmental-responsibility">axis.com/environmental-responsibility</a> Axis Communications is a signatory of the UN Global Compact, read more at <a href="http://unglobalcompact.org">unglobalcompact.org</a>

- Due to the high resolution of AXIS Q1809-LE, H.265 is the recommended encoding format.
- 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.
- Feature available with ACAP
- This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](http://openssl.org)), and cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

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

Table 1. Q1809-LE

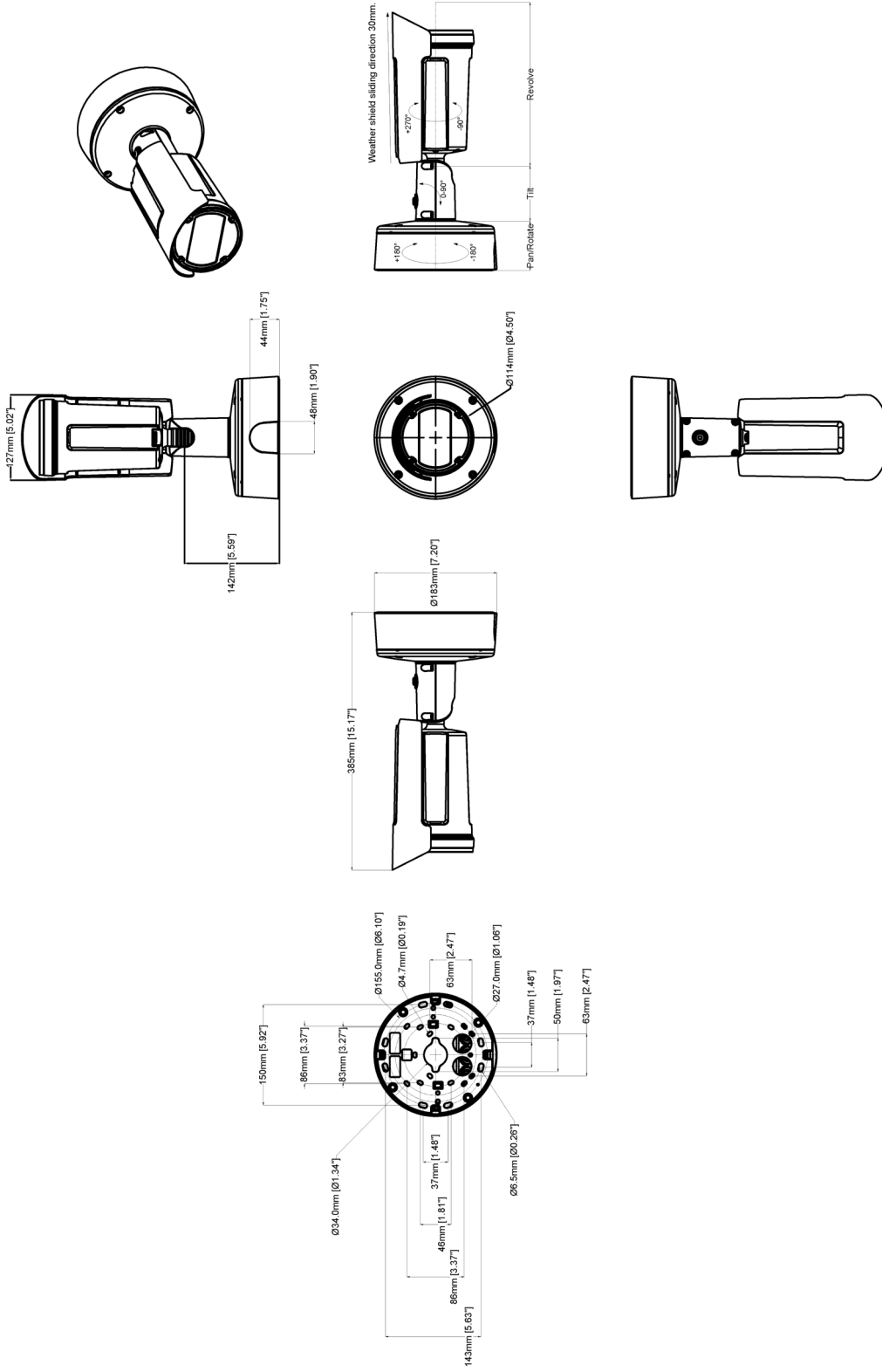
	DORI definition	Distance (wide)	Distance (tele)
Detect	25 px/m (8 px/ft)	210.8 m (691.4 ft)	407.1 m (1335.3 ft)
Observe	63 px/m (19 px/ft)	83.6 m (274.2 ft)	161.6 m (530.0 ft)
Recognize	125 px/m (38 px/ft)	42.2 m (138.4 ft)	81.4 m (267.0 ft)
Identify	250 px/m (76 px/ft)	21.0 m (68.9 ft)	40.7 m (133.5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

Table 2. 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

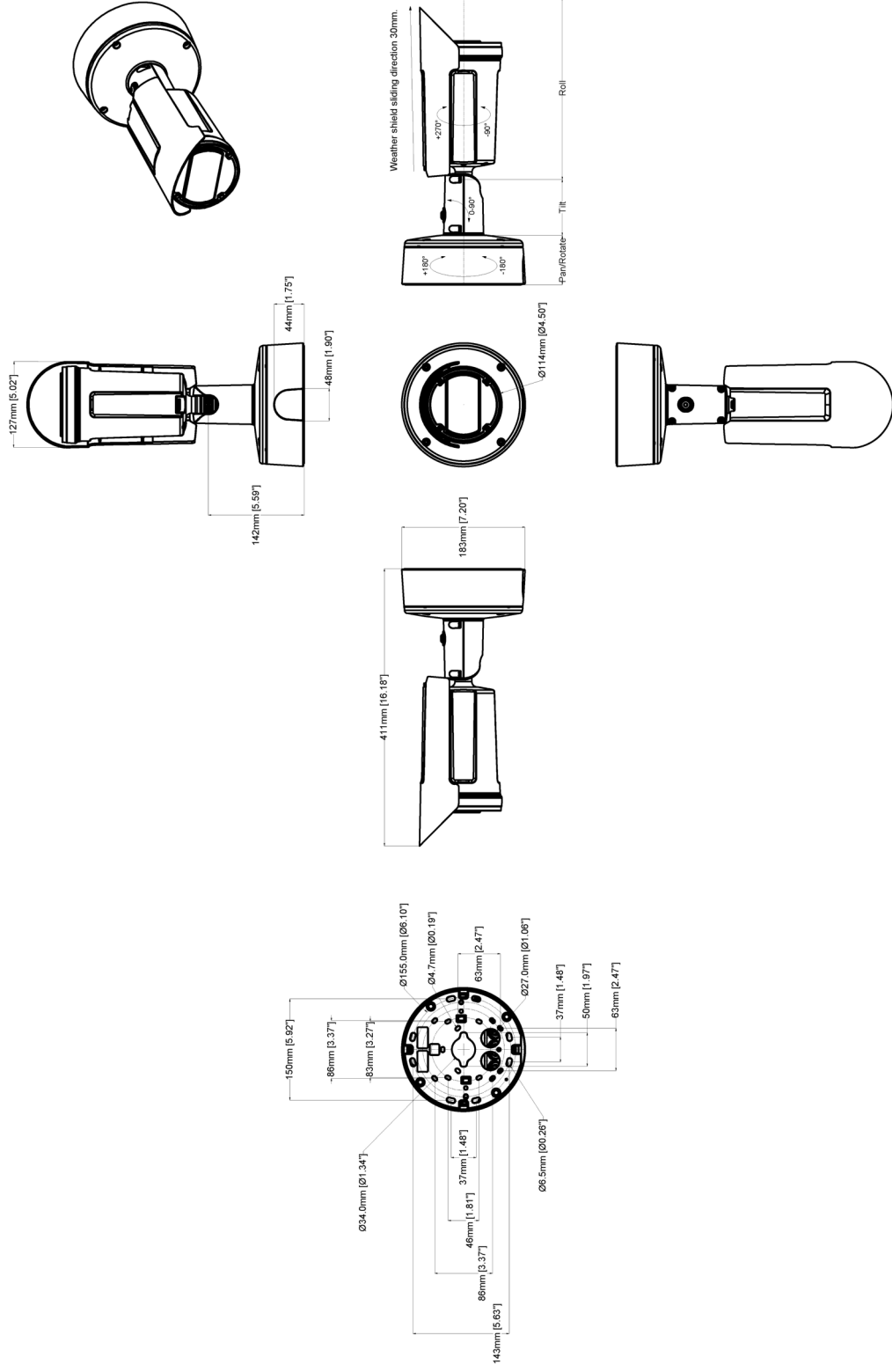


Revision	v.01	Revision date	2024-05-15
Paper size	A4	Release date	2024-05-15
Created by	MS	Scale	1:8

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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)