

# AXIS M4317-PLR Panoramic Camera

## 6 MP fisheye camera for buses

Optimized for surveillance onboard buses, this discreet, panoramic camera is designed to withstand shock and vibrations. It delivers a complete 180° or 360° overview for total situational awareness. Thanks to built-in IR illumination with individually controllable LEDs, it ensures clear, reflection-free footage and excellent image quality even in low light or complete darkness. Delivered factory-focused, it includes digital roll functionality to remotely adjust the rotation of the camera overview. Furthermore, this high-performance camera includes built-in cybersecurity features to help prevent unauthorized access and safeguard your system. Plus, it supports advanced analytics based on deep learning on the edge.

- > [Complies with industry bus regulations](#)
- > [Sharpdome technology](#)
- > [Complete 180° and 360° overview](#)
- > [Built-in IR with individual IR LEDs](#)
- > [Built-in cybersecurity features](#)



# AXIS M4317-PLR Panoramic Camera

## Camera

### Image sensor

1/1.8" progressive scan RGB CMOS

### Lens

Focal length: 1.1 mm, F2.2

Horizontal field of view: 182°

Vertical field of view: 182°

Fixed iris, IR corrected, fixed focus

### Day and night

Automatic IR-cut filter

### Minimum illumination

Color: 0.16 lux at 50 IRE, F2.2

B/W: 0.03 lux at 50 IRE, F2.2

0 lux with IR illumination on

### Shutter speed

1/33500 s to 0.2 s

### Camera adjustment

Digital roll:  $\pm 180^\circ$

## 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

Overview: 2160x2160 to 160x160

Panorama: 2560x1440 to 192x72

Double Panorama: 2560x1920 to 384x288

Quad view: 2560x1920 to 384x288

View area 1-4: 1920x1440 to 256x144

Corner right and left: 2368x1184 to 192x72

Double corner: 2016x2016 to 384x288

Corridor: 2560x1920 to 256x144

### Frame rate

360° overview only up to max resolution without WDR:

50/60 fps @ 50/60 Hz

360° overview and 4 dewarped views up to max

resolution with WDR: up to 25/30 fps @ 50/60 Hz

### Video streaming

Multiple, individually configurable streams in H.264, H.265 and Motion JPEG

Axis Zipstream technology in H.264 and H.265

Controllable frame rate and bandwidth

VBR/ABR/MBR H.264/H.265

Video streaming indicator

### WDR

Forensic WDR: Up to 120 dB depending on scene

### Noise reduction

Spatial filter (2D noise reduction)

Temporal filter (3D noise reduction)

### Image settings

Saturation, contrast, brightness, sharpness, local

contrast, tone mapping, white balance, day/night

threshold, exposure mode, exposure zones, compression,

mirroring, dynamic text and image overlay, polygon

privacy mask

### Image processing

Axis Zipstream, Forensic WDR, Lightfinder, OptimizedIR

### Pan/Tilt/Zoom

Digital PTZ of view areas, digital PT of panorama,

corner, corridor and quad views, preset positions, guard

tours

## Audio

### Features

Network speaker pairing

## Input/output

Audio features through portcast technology: two-way audio connectivity, voice enhancer

## Network

### Network protocols

IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>(1)</sup>, HTTP/2, TLS<sup>(1)</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, DHCPv4/v6, SSH, LLDP, CDP, MQTT v3.1.1, Syslog, Link-Local address (ZeroConf), IEEE 802.1X (EAP-TLS), IEEE 802.1AR

## 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, specification at [onvif.org](https://onvif.org)

Support for Session Initiation Protocol (SIP) for integration with Voice over IP (VoIP) systems, peer to peer or integrated with SIP/PBX.

### 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

Privacy masks  
IR illumination  
Media clip

### Edge-to-edge

Siren and light pairing

## Event conditions

Device status: above operating temperature, above or below operating temperature, below operating temperature, casing open, IP address removed, live stream active, network lost, new IP address, system ready, within operating temperature

Edge storage: recording ongoing, storage disruption, storage health issues detected

I/O: digital input is active, digital output is active, manual trigger, virtual input is active

MQTT: stateless

Scheduled and recurring: schedule

Video: average bitrate degradation, day-night mode, tampering

## Event actions

Day-night mode: use while the rule is active

I/O: toggle once, toggle while the rule is active

Illumination: use lights, use lights while the rule is active

Images: FTP, HTTP, HTTPS, SFTP, email and network share

MQTT: publish

Notification: HTTP, HTTPS, TCP and email

Overlay text: use, use while the rule is active

Recordings: record video, record video while the rule is active

SNMP trap messages: send, send while the rule is active

Status LED: flash, flash while the rule is active

Video clips: FTP, HTTP, HTTPS, SFTP, email and network share

WDR mode: set, set while the rule is active

## Built-in installation aids

Pixel counter, level grid, digital roll

## Analytics

### Applications

#### Included

AXIS Object Analytics, AXIS Image Health Analytics, AXIS Scene Metadata, AXIS Video Motion Detection, active tampering alarm

#### Supported

AXIS People Counter

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

1. 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@cryptsoft.com](mailto:ey@cryptsoft.com)).

## AXIS Object Analytics

**Object classes:** humans, vehicles (types: cars, buses, trucks, bikes)

**Scenarios:** line crossing, object in area, crossline counting, occupancy in area<sup>BETA</sup>

Up to 10 scenarios

**Other features:** triggered objects visualized with trajectories and color-coded bounding boxes

Polygon include/exclude areas

ONVIF Motion Alarm event

## AXIS Image Health Analytics

**Detection settings:**

Tampering: blocked image, redirected image

Image degradation: blurred image, underexposed image

**Other features:** sensitivity, validation period

## AXIS Scene Metadata

**Object classes:** humans, faces, vehicles (types: cars, buses, trucks, bikes)

**Object attributes:** vehicle color, confidence, position

## Approvals

### Product markings

CSA, UL/cUL, BIS, UKCA, CE, KC

### Supply chain

TAA compliant

### EMC

ECE R10 rev.06, EN 55035, EN 55032 Class A,  
EN 50121-4, EN 61000-6-1, EN 61000-6-2, EN 61547  
**Australia/New Zealand:** RCM AS/NZS CISPR 32 Class A  
**Canada:** ICES-3(A)/NMB-3(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

IEC/EN/UL 62368-1 ed. 3,  
CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN 62471 risk  
group exempt, UN ECE R118, 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 TR 60721-4-5 Class 5M3 (Vibration, Shock),  
IEC/EN 62262 IK10, IEC/EN 60529 IP66, ISO 4892-2,  
NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9),  
IEC/EN 61373 Category 1 Class B,  
ISO 21207 (Method B)

## 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), AES-XTS-Plain64 256bit SD card encryption

**Hardware:** Axis Edge Vault cybersecurity platform 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)<sup>(2)</sup>,  
IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR,  
HTTPS/HSTS<sup>(2)</sup>, TLS v1.2/v1.3<sup>(2)</sup>, 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](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-, NEMA 4X- and IK10-rated

Polycarbonate hard-coated dome

Aluminum

Color: white NCS S 1002-B

Repaintable skin cover accessory

### Mounting

Mounting bracket with junction box holes (double-gang, single-gang, and 4" octagon)

1/4"-20 UNC tripod screw thread

2. 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)).

## Power

Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3  
Typical 5.7 W, max 12.95 W

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## Connectors

Network: Shielded RJ45 10BASE-T/100BASE-TX PoE  
I/O: Terminal block for 1 supervised alarm input and 1 output (12 VDC output, max. load 25 mA)  
Audio: Audio and I/O connectivity via portcast technology

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## IR illumination

Optimized IR with power-efficient, long-life 850 nm IR LEDs  
Range of reach 20 m (65.6 ft) depending on the scene

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## Storage

Support for microSD/microSDHC/microSDXC card  
Recording to network-attached storage (NAS)  
For SD card and NAS recommendations see [axis.com](https://axis.com)

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## Operating conditions

-40 °C to 50 °C (-40 °F to 122 °F)  
Start-up temperature: -30 °C  
Humidity 10-100% RH (condensing)

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## Storage conditions

-40 °C to 65 °C (-40 °F to 149 °F)  
Humidity 5-95% RH (non-condensing)

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## Dimensions

Height: 70 mm (2.7 in)  
Ø 149 mm (5.9 in)  
Effective Projected Area (EPA): 0.0076 m<sup>2</sup> (0.025 ft<sup>2</sup>)

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## Weight

860 g (1.9 lb)

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## Box content

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

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## Optional accessories

AXIS T8415 Wireless Installation Tool, AXIS T94T02D Pendant kit, AXIS TM3814 Skin Cover Black, AXIS TM3204 Recessed Mount, AXIS TM3206 Recessed Mount, AXIS Mounts and Cabinets, AXIS Surveillance Cards  
For more accessories, go to [axis.com/products/axis-m4317-plr#accessories](https://axis.com/products/axis-m4317-plr#accessories)

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## System tools

AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator  
Available at [axis.com](https://axis.com)

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## Languages

English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese

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## Warranty

5-year warranty, see [axis.com/warranty](https://axis.com/warranty)

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## Part numbers

Available at [axis.com/products/axis-m4317-plr#part-numbers](https://axis.com/products/axis-m4317-plr#part-numbers)

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## 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. For SCIP UUID, see [axis.com/partner](https://axis.com/partner).

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### Materials

Renewable carbon-based plastic content: 29.6% (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)

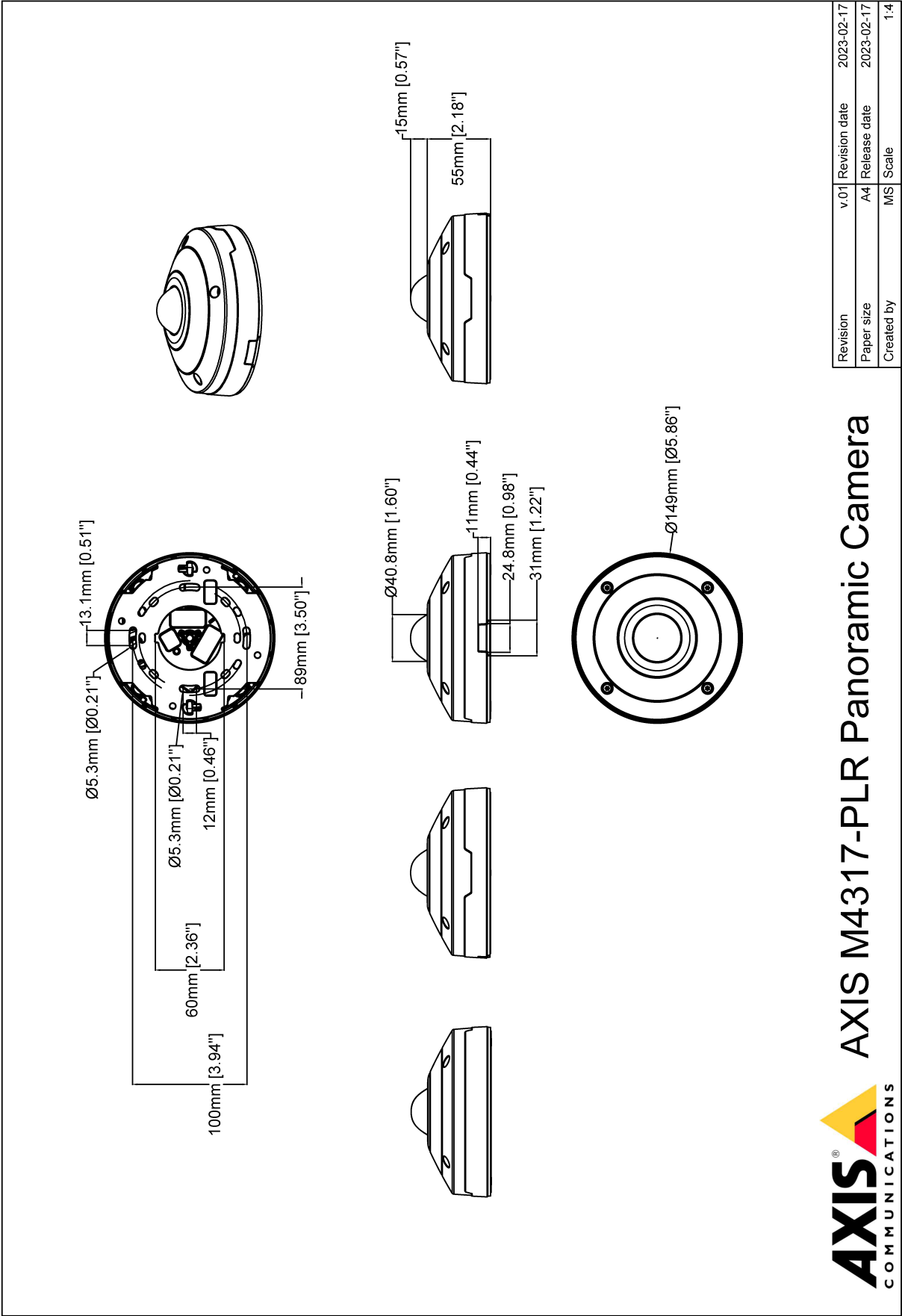
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### Environmental responsibility

[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)

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Dimension drawing



|            |      |               |            |
|------------|------|---------------|------------|
| Revision   | v.01 | Revision date | 2023-02-17 |
| Paper size | A4   | Release date  | 2023-02-17 |
| Created by | MS   | Scale         | 1:4        |

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## Highlighted capabilities

### AXIS Object Analytics

AXIS Object Analytics is a preinstalled, multifeatured video analytics that detects and classifies humans, vehicles, and types of vehicles. Thanks to AI-based algorithms and behavioral conditions, it analyzes the scene and their spatial behavior within – all tailored to your specific needs. Scalable and edge-based, it requires minimum effort to set up and supports various scenarios running simultaneously.

### 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).

### 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)