# AXIS M4318-PLVE Panoramic Camera

## 12 MP dome with 360° view and deep learning

With a 12 MP sensor, this discreet mini dome offers excellent image quality and a complete 180° or 360° overview. Featuring a stereographic lens and Sharpdome 360, it delivers greater sharpness at the edges of the image. Built-in IR illumination with individually controllable LEDs ensures clear, reflection-free footage and excellent image quality even in low light or complete darkness. A deep learning processing unit enables unique opportunities for analytics based on deep learning. Plus, AXIS Object Analytics can detect and classify humans, vehicles, and types of vehicles. Furthermore, Axis Edge Vault protects your Axis device ID and simplifies authorization of Axis devices on your network.

- > Complete 180° and 360° overview
- > Built-in IR with individual IR LEDs
- > Support for deep learning analytics
- > Built-in cybersecurity features
- > Digital roll for ease of installation

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## Camera

**Image sensor**
1/2.3" progressive scan RGB CMOS

**Lens**
Focal length: 1.2 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:** 0.19 lux at 50 IRE, F2.2
**B/W:** 0.04 lux at 50 IRE, F2.2
0 lux with IR illumination on

**Shutter speed**
1/8100 s to 0.5 s

**Camera adjustment**
Digital roll: ± 180°

## 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: 2992x2992 to 160x160
Panorama: 3840x2160 to 192x72
Double Panorama: 3584x2688 to 512x288
Quad view: 3584x2688 to 384x288
View area 1-4: 2048x1536 to 256x144
Corner right and left: 3200x1200 to 192x72
Double corner: 2880x2880 to 384x288
Corridor: 2560x1920 to 256x144

**Frame rate**
360° overview only up to max resolution without WDR: 25/30 fps @ 50/60 Hz
360° overview and 4 dewarped views up to max resolution with WDR: up to 25/20 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

**Audio features**
Network speaker pairing

### Audio input/output
Audio features through portcast technology: two-way audio connectivity, voice enhancer

## Network

### Network protocols
IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS[1], HTTP/2, TLS[1], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, 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*.
One-click cloud connection
ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specification at *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, AXIS Camera Station 5, and video management software from Axis' partners available at *axis.com/vms*.

### Onscreen controls
Privacy masks
IR illumination
Media clip

### 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**
Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

### AXIS Object Analytics
**Object classes:** humans, vehicles (types: cars, buses, trucks, bikes)
**Scenarios:** line crossing, object in area, crossline counting, occupancy in area[BETA]
Up to 10 scenarios
**Other features:** triggered objects visualized with trajectories, color-coded bounding boxes and tables
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

1. *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).*

## Approvals

**Product markings**
CSA, UL/cUL, BIS, UKCA, CE, KC

**Supply chain**
TAA compliant

**EMC**
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/EN 62262 IK10, IEC/EN 60529 IP66, ISO 4892-2, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9), 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)[2], IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS[2], TLS v1.2/v1.3[2], 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-, 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)
¼"-20 UNC tripod screw thread

**Power**
Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3
Typical 6.4 W, max 12.95 W

**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

**IR illumination**
OptimizedIR with power-efficient, long-life 850 nm IR LEDs
Range of reach 15 m (49.2 ft) depending on the scene

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

2. *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).*

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

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

### Dimensions
Height: 70 mm (2.7 in)
ø 149 mm (5.9 in)
Effective Projected Area (EPA): 0.0076 $m^2$ (0.025 $ft^2$)

### Weight
860 g (1.9 lb)

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

### 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-m4318-plve#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*

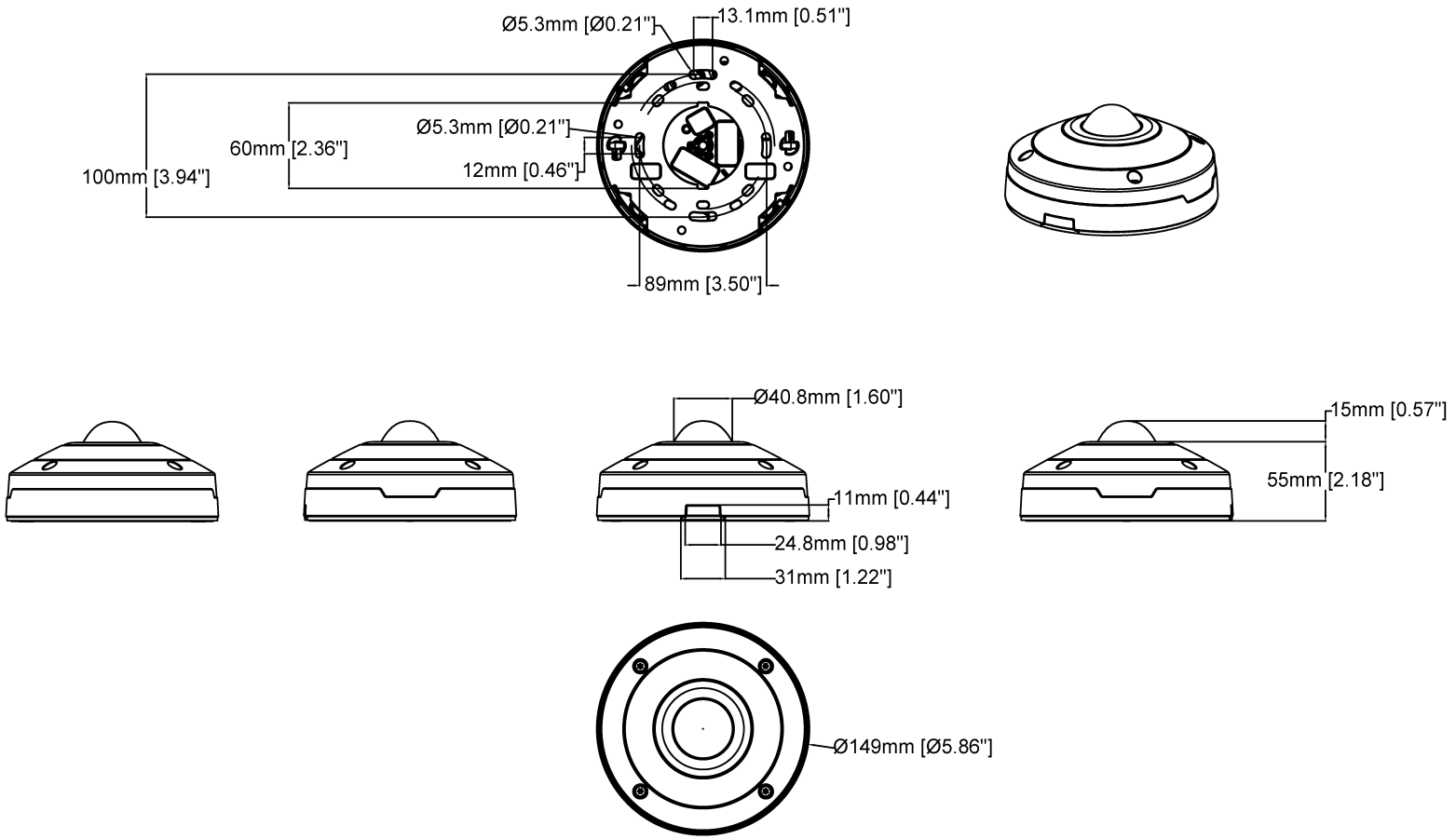
### Part numbers
Available at *axis.com/products/axis-m4318-plve#part-numbers*

## 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. For SCIP UUID, see *axis.com/partner.*

### 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*

### Environmental responsibility
*axis.com/environmental-responsibility*
Axis Communications is a signatory of the UN Global Compact, read more at *unglobalcompact.org*

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|---|---|---|---|
| Revision | v.01 | Revision date | 2023-02-14 |
| Paper size | A4 | Release date | 2023-02-14 |
| Created by | MF | Scale | 1:4 |

## 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*.

### 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*