AXIS M4348-PLR Panoramic Camera

12 MP onboard camera with 360° view and audio

This panoramic camera features a 12 MP sensor and offers complete 180°/ 360° coverage with no blind spots. Sharpdome 360 delivers outstanding image sharpness towards the edges, with excellent corner image quality. It delivers great detailed images in all light conditions and includes four built-in microphones. Designed for onboard installation, it can withstand high vibrations and is compliant with transportation industry standards. It's easy to install with PoE and includes an M12 or RJ45 connector for flexible installations. Furthermore, Axis Edge Vault, a hardware-based cybersecurity platform, safeguards the device and protects sensitive information from unauthorized access.

- > Complete 180° and 360° overview
- > Complies with EN 50155 and EN 45545-2
- > Camera-side dewarped views
- > Built-in audio
- > Built-in cybersecurity with Axis Edge Vault



FIPS 140-3 Inside #5139

AXIS M4348-PLR Panoramic Camera

Camera

Variants
AXIS M4348-PLR M12
AXIS M4348-PLR RJ45

Image sensor
1/1.6" progressive scan RGB CMOS
Pixel size 2.0 µm

Lens
Focal length: 1.7 mm, F2.0
Horizontal field of view: 185°
Vertical field of view: 185°
Minimum focus distance: 0.1 m (0.3 ft)
Fixed iris, IR corrected

Day and night
Automatic IR-cut filter

Minimum illumination
Color: 0.08 lux at 50 IRE, F2.0
B/W: 0.0 lux at 50 IRE, F2.0
0 lux with IR illumination on

Shutter speed
1/111000 s to 2 s with 50 Hz

System on chip (SoC)

Model
ARTPEC-9

Memory
4 GB RAM, 8 GB 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
AV1
Motion JPEG

Resolution
3536x3536

Frame rate
12 MP 25/30 mode: 25/30 fps (50/60 Hz)
8 MP (2880x2880) 50/60 mode (WDR off): 50/60 fps (50/60 Hz)
12 MP multi stream: 20/20 fps with 360 overview and 4 dewarped streams

Video streaming
Up to 20 unique and configurable video streams[1]
Axis Zipstream technology in H.264, H.265 and AV1
Controllable frame rate and bandwidth
VBR/ABR/MBR H.264/H.265/AV1
Low latency mode
Video streaming indicator

Signal-to-noise ratio
>55 dB

WDR
Forensic WDR: Up to 120 dB depending on scene

Image settings
Saturation, contrast, brightness, sharpness, white balance, day/night threshold, local contrast, tone mapping, exposure mode, exposure zones, defog, compression, mirroring, dynamic text and image overlay, overlay widget, privacy masks, target aperture

Image processing
Axis Zipstream, Forensic WDR, Lightfinder, OptimizedIR

Pan/Tilt/Zoom
Digital PTZ, preset positions

1. *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.*

Audio

Features
Automatic gain control
10-band graphic equalizer for audio input
Spectrum visualizer[2]

Streaming
Configurable duplex:
One-way (simplex, half duplex)

Input
Built-in microphone (can be disabled)

Built-in microphone specification
Signal-to-noise ratio: 68 dB(A) (94 dB SPL @ 1 m)
Max sound pressure level: 131 dB (10% THD)
Frequency range: 20 Hz - 20 kHz, +/- 3 dB

Encoding
24bit LPCM, AAC-LC 8/16/32/48 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[3], HTTP/2, TLS[3], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, NTS, PTP, 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

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, specifications at *onvif.org*

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
Day/night shift
Defog
Heater
IR illumination
Privacy masks
Video streaming indicator
Wide dynamic range

Event conditions
Device status: above/below/within operating temperature, casing open, IP address blocked/removed, live stream active, network lost, new IP address, system ready
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: MQTT client connected, stateless
PTZ: PTZ control queue, PTZ malfunctioning, PTZ movement, PTZ preset position reached, PTZ ready
Scheduled and recurring: schedule
Video: average bitrate degradation, day-night mode, tampering

Event actions
Day-night mode
Defog
Guard tours
I/O: toggle I/O once, toggle I/O while the rule is active
Illumination: use lights, use lights while the rule is active
Images: FTP, SFTP, HTTP, HTTPS, network share and email
LEDs: flash status LED, flash status LED while the rule is active
MQTT: send MQTT publish message
Notification: HTTP, HTTPS, TCP and email
Overlay text
Preset positions
Recordings: record video, record video while the rule is active
Security: erase configuration
SNMP trap messages: send, send while the rule is active
Video clips: FTP, SFTP, HTTP, HTTPS, network share and email
WDR mode

Built-in installation aids
Digital roll

2. *Feature available with ACAP*
3. *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).*

Analytics

Applications
Included
AXIS Scene Metadata, AXIS Video Motion Detection
Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

AXIS Scene Metadata
Object classes: humans, faces, vehicles (types: cars, buses, trucks, bikes), license plates
Object attributes: vehicle color, upper/lower clothing color, bag, confidence, position

Approvals

Product markings
UL/cUL, CE, KC, VCCI, RCM

Supply chain
TAA compliant

EMC
CISPR 35, CISPR 32 Class A, ECE R10 rev.06, EN 55035, EN 55032 Class A, 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
Taiwan: CNS 15936
Railway: IEC 62236-4, EN 50121-4, EN 50121-3-2

Safety
CAN/CSA C22.2 No. 62368-1 ed. 3,
IEC/EN 62368-1 ed. 3, UL 62368-1 ed. 3, IEC/EN 62471 risk group exempt, NOM-001, UN ECE R118,
EN 45545-2[4], NFPA 130[4]

Environment
EN 50155 OT2/ST2/H1[4], IEC 60068-2-1,
IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-27,
IEC 60068-2-64, IEC 60529 IP66, IEC 62262 IK10,
NEMA 250 Type 4X, IEC 61373 Cat 1 Class B[4],
IEC 60721-3-5 Class 5M6

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 keystore: secure element (CC EAL 6+, FIPS 140-3 Level 3), system-on-chip security (TEE)
Axis device ID, signed video, secure boot, encrypted filesystem (AES-XTS-Plain64 256bit)

Network security
IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)[5],
IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR,
HTTPS/HSTS[5], TLS v1.2/v1.3[5], 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 802.3at Type 2 Class 4, max 16.7 W, typical (heater off, IR off) 7.1 W
Features: dynamic power mode, power meter

4. *Only applicable to M12 variant*
5. *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).*

I/O functionality
1 digital/supervised input and 1 output 12 VDC output, max load 25 mA

Connectors
RJ45: male, shielded, 10BASE-T/100BASE-TX
M12: female, rugged, D-coded with rotatable coupling nut
All connectors support PoE
I/O: 4-pin 2.5 mm terminal block

IR illumination
OptimizedIR with power-efficient, long-life 850 nm IR LEDs
Range of reach 20 m (65 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*

Operating conditions
Temperature: -40 °C to 55 °C (-40 °F to 131 °F)
Humidity: 10–100% RH (condensing)

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.
Effective Projected Area (EPA): 0.0076 m^2 (0.0818 ft^2)

Weight
890 g (2.0 lb)

Box content
Camera, installation guide, owner authentication key

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*

Software support
New feature development until 2032 (AXIS OS 12, 13, 14 and 15)
Support until 2037-12-31 (AXIS OS LTS 2032-2037)
Read more about the AXIS OS lifecycle at *help.axis.com/axis-os*

Part numbers
Available at *axis.com/products/axis-m4348–plr#part-numbers*

Optional accessories

Installation
AXIS T8415 Wireless Installation Tool

Mounting
AXIS T91A13 Threaded Ceiling Mount, AXIS T94K01D Pendant Kit

Storage
AXIS Surveillance Cards

For more accessories, go to *axis.com/products/axis-m4348-plr#compatible-products*

Sustainability

Substance control
Compliant with the UNIFE Railway Industry Substance List (RISL)[6]
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 *echa.europa.eu*

Materials
Renewable carbon-based plastic content: 35% (recycled: 7%, bio-based: 28%)
Screened for conflict minerals in accordance with OECD guidelines
To read more about sustainability at Axis, go to *axis.com/about-axis/sustainability*

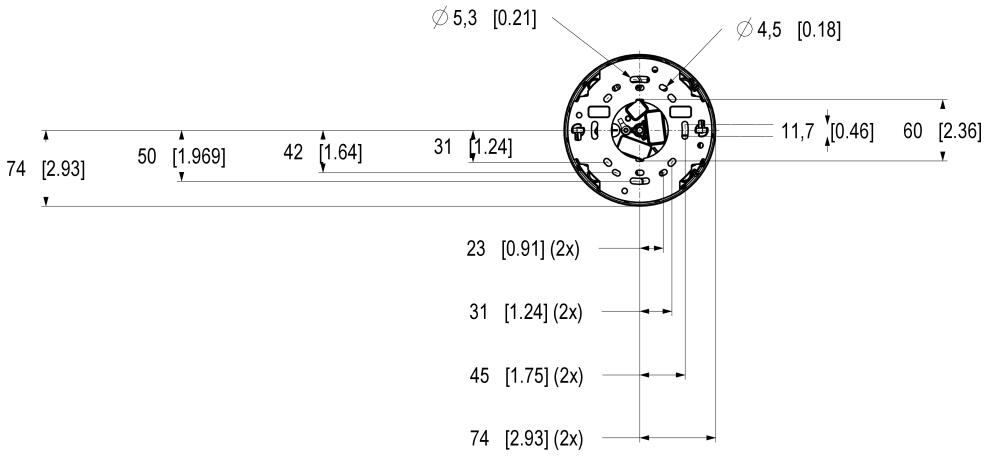
Environmental responsibility
axis.com/environmental-responsibility
Axis Communications is a signatory of the UN Global Compact, read more at *unglobalcompact.org*

6. *Only applicable to M12 variant*

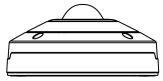
Detect, Observe, Recognize, Identify (DORI)

	DORI definition	Distance (center)	Distance (corner)
Detect	25 px/m (8 px/ft)	33.5 m (109.9 ft)	49.6 m (162.7 ft)
Observe	63 px/m (19 px/ft)	13.3 m (43.6 ft)	19.7 m (64.6 ft)
Recognize	125 px/m (38 px/ft)	6.7 m (22.0 ft)	9.9 m (32.5 ft)
Identify	250 px/m (76 px/ft)	3.3 m (10.8 ft)	5.0 m (16.4 ft)

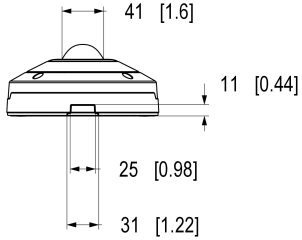
The DORI values are calculated using pixel densities for different use cases as recommended by the EN-62676-4 standard. The calculations use the center of the image as the reference point and consider lens distortion. The possibility to recognize or identify a person or object depends on factors such 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.

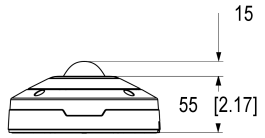


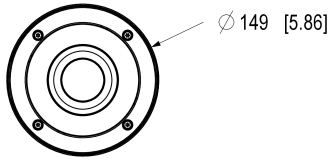












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AXIS M4348-PLR Panoramic Camera

Dimensions in mm [inch]

Date	Version	Scale
2026 Aug-12	M1.4	1:3
Drawing Number	Size	Sheet
3521191	A2	1(1)

Highlighted capabilities

AV1

AV1 is a modern video encoding standard optimized for video transmission over the internet by Alliance for Open Media (AoM). It was designed to provide better compression efficiency than older codecs including H.264 (also known as AVC) and H.265 (HEVC), while being royalty-free and open-source.

Rugged

Rugged is a term that for Axis modular and onboard products describes a device's endurance and stability in high vibration environments – over time. High vibration environments could be inside or close to machinery or inside vehicles. Rugged products from Axis are constructed to keep operating in these challenging conditions for the entire lifetime of the product.

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*.

For more information, see *axis.com/glossary*

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