AXIS M3905-R Dome Camera
2 MP indoor onboard surveillance

This compact and discreet 2 MP onboard camera complies with transportation-industry regulations including fire-safety for buses. It can withstand vibrations and a wide range of temperatures. Additionally, with AXIS TP3826-E housing this dome camera can be mounted on the outside of a bus. Thanks to Lightfinder and Forensic WDR, it provides details even in challenging light conditions. And with traffic light mode it can distinguish the color of traffic lights in dark scenes. Optional M12 lenses are available to adjust field of view for customized monitoring purposes.

> **Compact, rugged design**
> **88° Horizontal field of view**
> **Lightfinder and Forensic WDR**
> **Zipstream**
> **Traffic Light mode**

AXIS M3905-R Dome Camera

Variants	AXIS M3905-R RJ45 3.6 mm AXIS M3905-R M12 3.6 mm AXIS M3905-R RJ45 2.8 mm AXIS M3905-R M12 2.8 mm

Camera

Image sensor	1/2.9" Progressive scan RGB CMOS Pixel size 2.8 μm
Lens	**3.6 mm, F2.0** : Horizontal field of view: 88° Vertical field of view: 47° Minimum focus distance: 0.3 m (1 ft) M12 mount, fixed iris **2.8 mm, F1.2** : Horizontal field of view: 107° Vertical field of view: 56° Minimum focus distance: 0.3 m (1 ft) M12 mount, fixed iris See **Optional accessories** for exchangeable lenses
Minimum illumination	**3.6 mm, F2.0** : **Color:** 0.04 lux at 30 IRE F2.0 **Color:** 0.13 lux at 50 IRE F2.0 **2.8 mm, F1.2** : **Color:** 0.02 lux at 30 IRE F1.2 **Color:** 0.07 lux at 50 IRE F1.2
Shutter speed	**With WDR:** 1/19000 s to 1/5 s **No WDR:** 1/17000 s to 1/5 s
Camera adjustment	Pan: ±30° Tilt: 15-90° Rotation: ±175°

System on chip (SoC)

Model	S6LM55
Memory	1024 MB RAM, 512 MB Flash

Video

Video compression	H.264 (MPEG-4 Part 10/AVC) Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG
Resolution	**16:9:** 1920x1080 to 640X360 **16:10:** 1280x800 to 640x400 **4:3:** 1280x960 to 320x240
Frame rate	H.264 and H.265: 25/30 fps (50/60 Hz) in all resolutions Motion JPEG: 15 fps (50/60 Hz) in all resolutions
Video streaming	Up to 4 unique and configurable video streams[a] 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 and 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	Compression, brightness, sharpness, contrast, white balance, Forensic WDR, exposure control, exposure zones, fine tuning of behavior at low light, rotation: 0°, 90°, 180°, 270° including Corridor Format, dynamic overlay, 32 individual polygonal privacy mask, mirroring of images Scene profiles: forensic, vivid, traffic overview
Image processing	Axis Zipstream, Forensic WDR, Lightfinder
Pan/Tilt/Zoom	Digital PTZ, preset positions, guard tour, control queue

Network

Network protocols	IPv4, IPv6 USGv6, HTTP, HTTPS, HTTP/2, TLS, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SOCKS, SSH, LLDP, CDP, MQTT v3.1.1, Syslog, Link-Local address (ZeroConf)

System integration

Application Programming Interface	Open API for software integration, including VAPIX® 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*
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	Video streaming indicator Wide dynamic range Privacy masks
Event conditions	Device status: above operating temperature, above or below operating temperature, below operating temperature, IP address removed, network lost, new IP address, storage failure, system ready, within operating temperature Edge storage: recording ongoing, storage disruption I/O: manual trigger, virtual input MQTT subscribe Scheduled and recurring: scheduled event Video: average bitrate degradation, live stream open, tampering
Event actions	Guard tours Upload images or video clips: FTP, HTTP, HTTPS, SFTP, email and network share Notification: HTTP, HTTPS, TCP and email Overlay text Preset positions Record video: SD card and network share SNMP trap messages WDR mode MQTT publish
Built-in installation aids	Pixel counter

Analytics

Applications	Included AXIS Video Motion Detection, active tampering alarm[b] Supported AXIS Fence Guard, AXIS Loitering Guard, AXIS Motion Guard Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

Approvals

Product markings	CE, ECE, KC, RCM, UL/cUL, UKCA, VCCI, WEEE
Supply chain	TAA compliant NDAA compliant
EMC	EN 55032 Class A, EN 55035, EN 61000-6-1, EN 61000-6-2, ECE R10 rev.06 (E approval), EN 50498, **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
Safety	IEC/EN/UL 62368-1, CAN/CSA C22.2 No. 62368-1, UN ECE R118 IS 13252
Environment	IEC/EN 60529 IP66, IEC/EN 60529 IP67, IEC/EN 62262 IK10, IEC 60721-3-5 Class 5M3 (vibration and shock), IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-27, IEC 60068-2-64, IEC 60068-2-78, IEC 60068-2-14
Network	NIST SP500-267
Cybersecurity	ETSI EN 303 645

Cybersecurity

Edge security	**Software:** Signed OS, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 OpenID Authorization Code Flow for centralized ADFS account management, password protection, 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), IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS, TLS v1.2/v1.3, Network Time Security (NTS), X.509 Certificate PKI, host-based firewall

Documentation	AXIS 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	IP66/67- and IK10-rated aluminum and polycarbonate casing
Mounting	Inside vehicles
Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 1 Typical 2.2 W, max 3.8 W
Connectors	**RJ45:** male, 10BASE-T/100BASE-TX **M12:** female, rugged, D-coded with rotatable coupling nut All connectors support PoE
Storage	Support for microSD/microSDHC/microSDXC card with UHS Speed Class U1 Support for recording to network-attached storage (NAS) For SD card and NAS recommendations see *axis.com*
Operating conditions	-30 °C to 55 °C (-22 °F to 131 °F) Maximum (intermittent): 70 °C (158 °F) Humidity: 10-100% RH (condensing)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F)
Dimensions	Height: 50 mm (1.97 in), ø 110 mm (4.33 in)
Weight	241 g (0.53 lb)
Box content	Camera, Installation guide, Windows® decoder 1-user license, lens tool
Optional accessories	Lenses Lens M12 2.1 mm, F2.2: horizontal field of view 145° Lens M12 2.8 mm, F1.2: horizontal field of view 107° Lens M12 3.6 mm, F2.0 : horizontal field of view 88° Lens M12 6 mm, F1.6: horizontal field of view 51° Lens M12 8 mm, F1.6: horizontal field of view 39°

	Other AXIS T94D01S Mount Bracket, AXIS T94D02S Curved Mount Bracket, Network coupler IP66, Network cable coupler indoor, TM3101 Pendant Wall Mount, AXIS TP3826-E housing, TP3827 Clear Dome Cover, TP3830 Top Black Cover For more accessories, see *axis.com/products/axis-m3905-r#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-m3905-r#part-numbers*

Sustainability

Substance control	PVC free, BFR/CFR free 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	Recycled aluminum: 95% 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*

a. *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.*
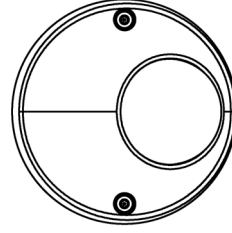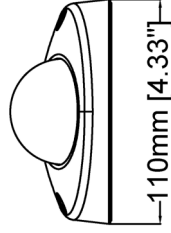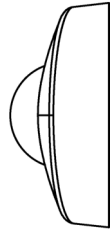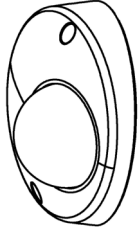b. *For detection of tampering attempts in static and non-crowded scenes.*

Detect, Observe, Recognize, Identify (DORI)

3.6 mm lens	DORI definition	Distance
Detect	25 px/m (8 px/ft)	50.6 m (166.0 ft)
Observe	63 px/m (19 px/ft)	20.1 m (65.9 ft)
Recognize	125 px/m (38 px/ft)	10.1 m (33.1 ft)
Identify	250 px/m (76 px/ft)	5.1 m (16.7 ft)

2.8 mm lens	DORI definition	Distance
Detect	25 px/m (8 px/ft)	21.1 m (69.2 ft)
Observe	63 px/m (19 px/ft)	7.4 m (24.3 ft)
Recognize	125 px/m (38 px/ft)	4.2 m (13.8 ft)
Identify	250 px/m (76 px/ft)	2.1 m (6.9 ft)

Axis calculates the DORI values 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.
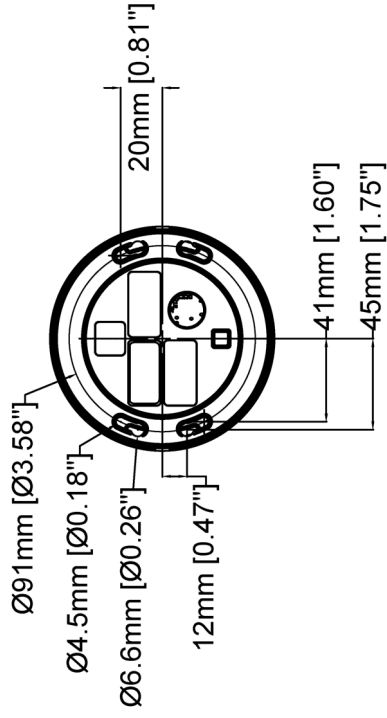
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20mm [0.81"]
41mm [1.60"]
45mm [1.75"]
110mm [4.33"]
50mm [1.95"]
Ø91mm [Ø3.58"]
Ø4.5mm [Ø0.18"]
Ø6.6mm [Ø0.26"]
12mm [0.47"]

Revision		v.01	Revision date	2022-12-14
Paper size		A4	Release date	2022-12-14
Created by		MS	Scale	1:3

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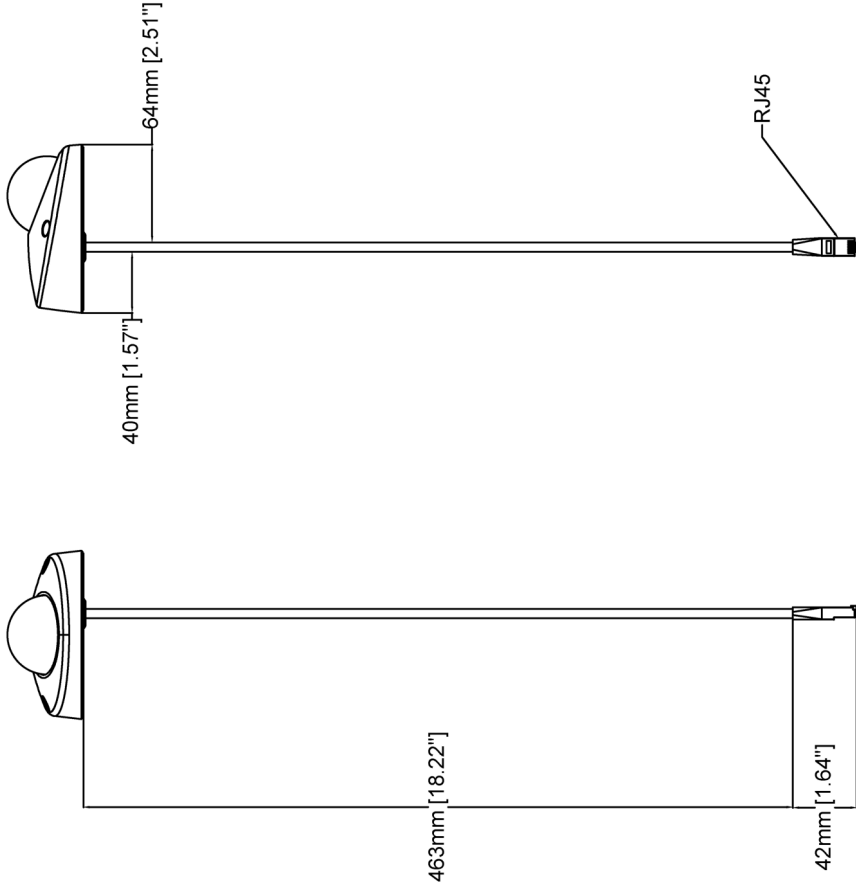
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64mm [2.51"]

40mm [1.57"]

463mm [18.22"]

42mm [1.64"]

RJ45

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40mm [1.57"]

M12

463mm [18.22"]

44mm [1.74"]
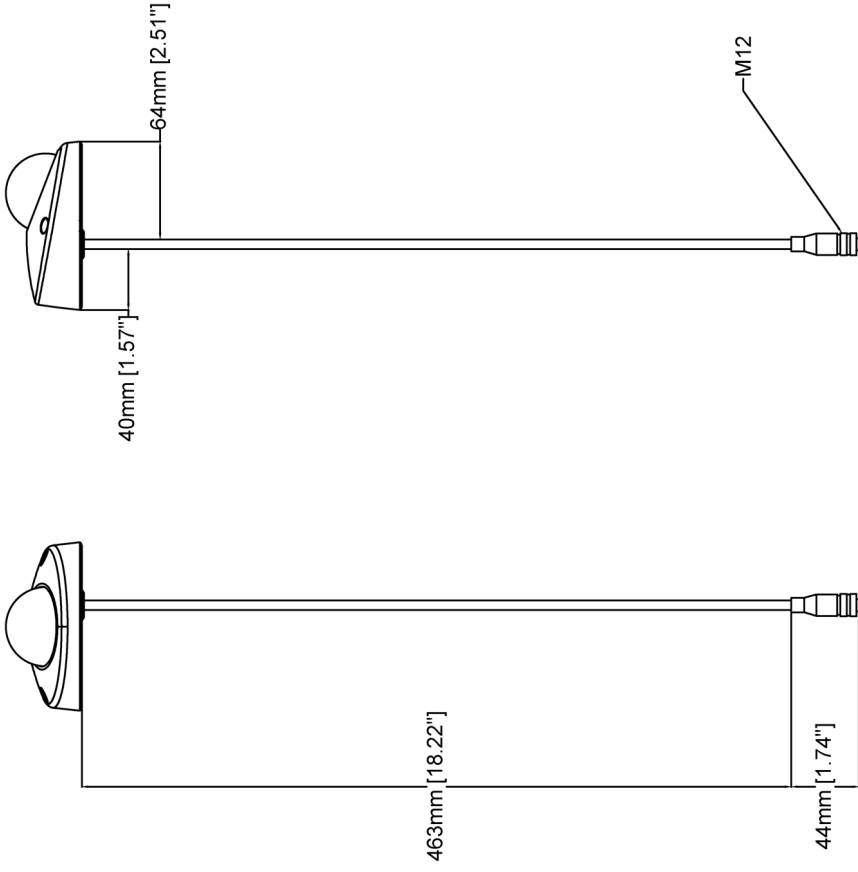
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Highlighted capabilities

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*.

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.

Forensic WDR

Axis cameras with wide dynamic range (WDR) technology make the difference between seeing important forensic details clearly and seeing nothing but a blur in challenging light conditions. The difference between the darkest and the brightest spots can spell trouble for image usability and clarity. Forensic WDR effectively reduces visible noise and artifacts to deliver video tuned for maximal forensic usability.

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.

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

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