AXIS
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AXIS P1388-LE Box Camera
Reliable 8 MP outdoor surveillance

This robust camera delivers excellent image quality in 8 MP. It can handle temperatures from -40 °C to 60 °C (-40 °F to 140 °F). A front heater ensures the lens is free of ice and fog. And Lightfinder 2.0, Forensic WDR, and OptimizedIR deliver true colors and great detail regardless of light conditions. Scene profiles can be automatically optimized for specific scenarios. PoE and redundant DC power ensure flexible installation. With a DLPU, you can run advanced features and powerful analytics on the edge. Furthermore, Axis Edge Vault safeguards your device and protects sensitive information from unauthorized access.

> **Excellent image quality in 4K**

> **-40 °C to 60 °C (-40 °F to 140 °F)**

> **Robust and impact-resistant design**

> **Analytics with deep learning**

> **Built-in cybersecurity with Axis Edge Vault**

Onvif® | GMST

HDTV
NETWORK VIDEO

AXIS P1388-LE Box Camera

Camera

Image sensor	1/1.8" progressive scan RGB CMOS Pixel size 2.0 µm
Lens	Varifocal, 3.9–10 mm, F1.5 Horizontal field of view: 122°–46° Vertical field of view: 64°–26° IR corrected, CS-mount lens, P-Iris control
Day and night	Automatically removable infrared-cut filter
Minimum illumination	**4K 25/30 fps with Forensic WDR and Lightfinder 2.0:** **Color:** 0.13 lux at 50 IRE, F1.5 **B/W:** 0.03 lux at 50 IRE, F1.5 **4K 50/60 fps with Lightfinder 2.0:** **Color:** 0.3 lux at 50 IRE, F1.5 **B/W:** 0.06 lux at 50 IRE, F1.5 **4K 25/30 fps with Forensic WDR and Lightfinder 2.0:** **With optional F0.9 lens** **Color:** 0.05 lux at 50 IRE, F0.9 **B/W:** 0.011 lux at 50 IRE, F0.9 0 lux with IR illumination on
Shutter speed	1/66500 s to 2 s with 50 Hz 1/66500 s to 2 s with 60 Hz

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	3840x2160 to 160x90
Frame rate	**With forensic WDR:** Up to 25/30 fps (50/60 Hz) in all resolutions **No WDR:** Up to 50/60 fps (50/60 Hz) in all resolutions
Video streaming	Up to 20 unique and configurable video streams[a] 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
Signal-to-noise ratio	>55 dB
WDR	Forensic WDR: Up to 120 dB depending on scene
Multi-view streaming	Up to 8 individually cropped out view areas
Noise reduction	Spatial filter (2D noise reduction) Temporal filter (3D noise reduction)
Image settings	Contrast, brightness, sharpness, white balance, day/night threshold, tone mapping, exposure mode, exposure zones, defogging, barrel distortion correction, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, text and image overlay,dynamic text and image overlay, privacy masks, polygon privacy mask, target aperture Scene profiles: forensic, vivid, traffic overview
Image processing	Axis Zipstream, Forensic WDR, Lightfinder 2.0, OptimizedIR
Pan/Tilt/Zoom	Digital PTZ, preset positions Preset position tour, control queue, on-screen directional indicator Guard tour (max 100)

Audio

Audio features	Automatic gain control Speaker pairing
Audio streaming	Configurable duplex: One-way (simplex) Two-way (half duplex, full duplex)
Audio input	Input for external unbalanced microphone, optional 5 V microphone power Digital input, optional 12 V ring power Unbalanced line input
Audio output	Output through speaker pairing
Audio 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

Network

Network protocols	IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS[b], HTTP/2, TLS [b], 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, ICMP, DHCPv4/v6, ARP, SSH, LLDP, CDP, MQTT v3.1.1, Secure syslog (RFC 3164/5424, UDP/TCP/TLS), 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*. ACAP includes Native SDK and Computer Vision SDK. 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 Companion, AXIS Camera Station, video management software from Axis' Application Development Partners available at *axis.com/vms*
Onscreen controls	Electronic image stabilization Day/night shift Defogging Wide dynamic range Video streaming indicator Autofocus Privacy masks Media clip Heater
Edge-to-edge	Microphone pairing Speaker pairing
Event conditions	Audio: audio detection, audio clip playing Device status: above/below/within operating temperature, IP address removed/blocked, new IP address, network lost, system ready, ring power overcurrent protection, live stream active Digital audio input status Edge storage: recording ongoing, storage disruption, storage health issues detected I/O: digital input, digital output, manual trigger, virtual input MQTT: stateless Scheduled and recurring: schedule Video: average bitrate degradation, day-night mode, tampering
Event actions	Audio clips: play, stop Day-night mode I/O: toggle I/O once, toggle I/O while the rule is active MQTT: publish Notification: HTTP, HTTPS, TCP and email Overlay text Recordings: record, record while the rule is active SNMP traps: send, send while the rule is active Status LED: flash, flash while the rule is active Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email WDR mode
Built-in installation aids	Leveling assistant, remote back focus

Analytics

Applications	Included: Supported: AXIS Perimeter Defender, AXIS License Plate Verifier, AXIS Speed Monitor Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*
AXIS Object Analytics	Scenarios: line crossing, object in area, time in area, crossline counting, occupancy in area Up to 10 scenarios Other features: triggered objects visualized with trajectories, color-coded bounding boxes and tables Polygon include/exclude areas Perspective configuration

	ONVIF Motion Alarm event
AXIS Scene Metadata	**Object classes:** humans, faces, vehicles (types: cars, buses, trucks, bikes), license plates **Object attributes:** confidence, position

Approvals

Product markings	UL/cUL, UKCA, CE, KC, EAC, VCCI, RCM
Supply chain	TAA compliant
EMC	CISPR 35, CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-6-1, EN 61000-6-2 **Japan:** VCCI Class A **Korea:** KS C 9835, KS C 9832 Class A **USA:** FCC Part 15 Subpart B Class A
Safety	CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3, 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 60529 IP66/IP67, IEC/EN 62262 IK10, ISO 4892–2 NEMA 250 Type 4X, NEMA TS 2 (2.2.7–2.2.9)
Network	NIST SP500-267, IPv6 USGv6
Cybersecurity	ETSI EN 303 645, FIPS 140

Cybersecurity

Edge security	**Hardware:** Axis Edge Vault cybersecurity platform Secure element (CC EAL 6+), Axis device ID, secure keystore, signed video, secure boot
Network security	IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)[b], IEEE 802.1AR, HTTPS/HSTS[b], TLS v1.2/v1.3[b], Network Time Security (NTS), X.509 Certificate PKI, IP address filtering
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-, IP67-, NEMA 4X- and IK10-rated Aluminum and plastic casing Weathershield with black anti-glare coating Color: white NCS S 1002-B For repainting instructions, go to the product's support page. For information about the impact on warranty, go to *axis.com/warranty-implication-when-repainting.* This product can be repainted.
Mounting	Camera stand included
Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 2 Class 4 Typical 9.58 W, max 25.5 W 10–28 V DC, typical 9.14 W, max 25.5 W IR illumination on: class 4, max 25.50 W IR illumination off: class 3, max 12.95 W
Connectors	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE I/O: 6-pin 2.5 mm terminal block for 2 supervised alarm inputs and 2 outputs (12 V DC output, max load 50 mA) Audio: 3.5 mm mic/line in Serial communication: RS485/RS422, 2 pcs, 2 pos, full duplex, terminal block

	Power: DC input, terminal block Lens: i-CS connector (compatible with P-Iris and DC-iris) AXIS T92G20 connector
IR illumination	OptimizedIR with power-efficient, long-life 850 nm IR LEDs Range of reach 50 m (164 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	–40 °C to 60 °C (–40 °F to 140 °F) Humidity 10–100% RH (condensing) Wind load (sustained): 55 m/s (123 mph)
Storage conditions	–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): 0.06 m^2 (0.20 ft^2)
Weight	3340 g (7.4 lb) including wall mount 2460 g (5.4 lb) for camera only
Box content	Camera, installation guide, terminal block connectors, AXIS TQ1003-E Wall Mount, owner authentication key
Optional accessories	AXIS Microphones, AXIS Midspans AXIS T8415 Wireless Installation Tool AXIS Surveillance Cards For more accessories, go to *axis.com/products/axis-p1388-le#accessories*
System tools	AXIS Site Designer, AXIS Device Manager, AXIS Device Manager Extend, 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-p1388-le#part-numbers*

Sustainability

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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 *echa.europa.eu*
Materials	Renewable carbon-based plastic content: 36% (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*

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. *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).*

Detect, Observe, Recognize, Identify (DORI)

	DORI definition	Distance (wide)	Distance (tele)
Detect	25 px/m (8 px/ft)	78.7 m (258.1 ft)	193.5 m (634.8 ft)
Observe	63 px/m (19 px/ft)	31.2 m (102.4 ft)	76.8 m (251.9 ft)
Recognize	125 px/m (38 px/ft)	15.7 m (51.6 ft)	38.7 m (127.0 ft)
Identify	250 px/m (76 px/ft)	7.9 m (25.8 ft)	19.4 m (63.5 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 drawing

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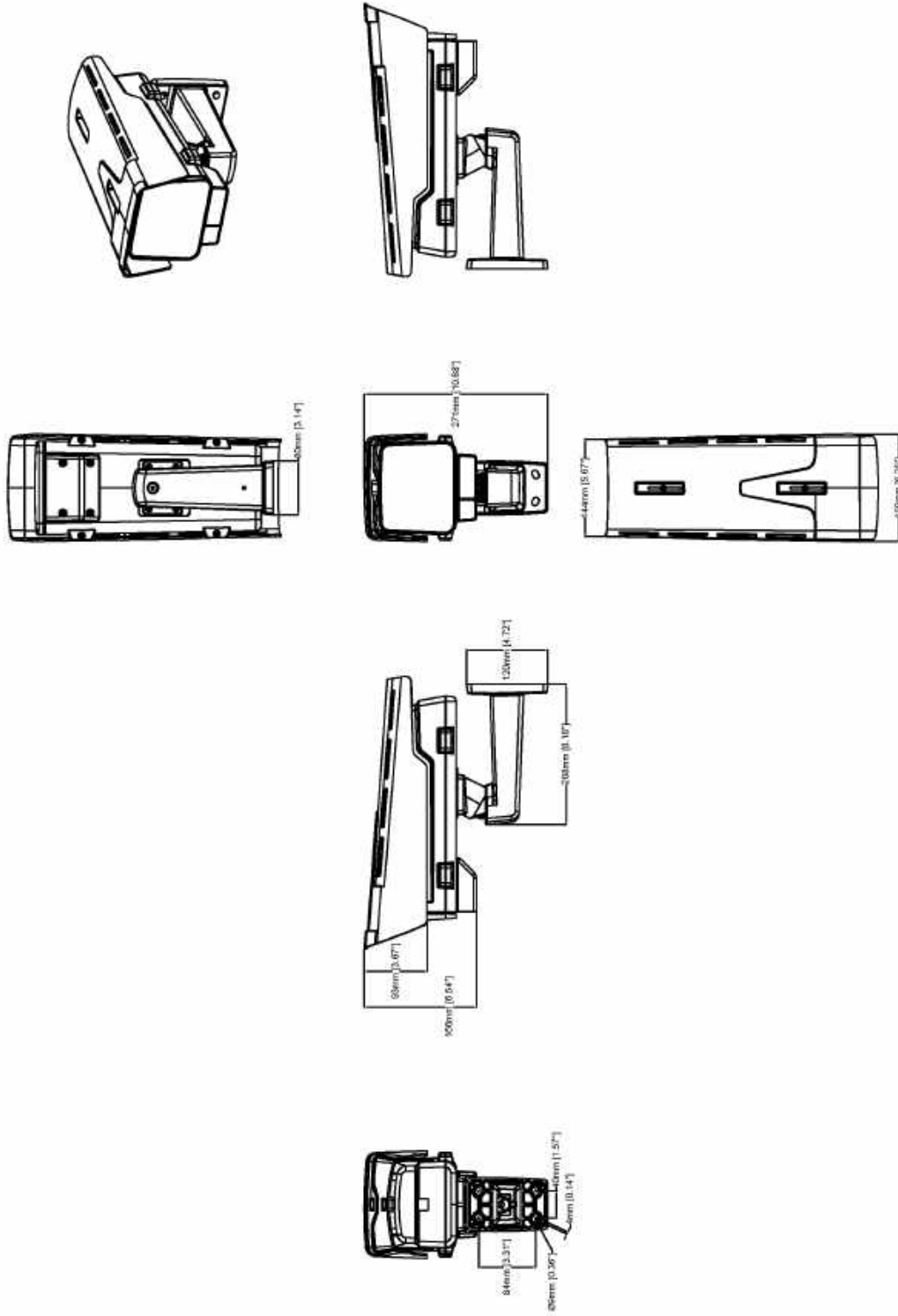
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Revision		v.01	Revision date	2024-01-05
Paper size		A4	Release date	2024-01-05
Created by		MS	Scale	1:8

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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*.

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.

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.

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.

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

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