

# AXIS P3277-LVE Dome Camera

## Outdoor 5 MP AI-powered dome

This AI-powered camera delivers excellent image quality in 5 MP even in harsh weather and environments. Built on ARTPEC-9, it offers accelerated performance to run impressive analytics applications on the edge. It comes with AXIS Object Analytics to detect, classify, track, and count humans, vehicles, and types of vehicles. In addition, AXIS Live Privacy Shield makes it easy to remotely monitor activities while protecting privacy. This robust, IK10-, IP66-, and NEMA 4X-rated camera is both vandal- and impact-resistant. Furthermore, Axis Edge Vault, a hardware-based cybersecurity platform, safeguards the device and protects sensitive information from unauthorized access.

- > [Excellent image quality in 5 MP](#)
- > [Next-generation AI-powered analytics](#)
- > [Lightfinder 2.0 and Forensic WDR](#)
- > [Variant with built-in microphone](#)
- > [Built-in cybersecurity with Axis Edge Vault](#)



# AXIS P3277-LVE Dome Camera

## Camera

### Variants

AXIS P3277-LVE  
AXIS P3277-LVE Mic

### Image sensor

1/2.8" progressive scan RGB CMOS  
Pixel size 2.0  $\mu\text{m}$

### Lens

Varifocal, 3.0–8.5 mm, F1.38–2.58  
Horizontal field of view: 104°–34°  
Vertical field of view: 76°–26°  
Minimum focus distance: 1 m (3.28 ft)  
IR corrected, remote zoom and focus, P-Iris control

### Day and night

Automatic IR-cut filter

### Minimum illumination

**Color:** 0.1 lux at 50 IRE, F1.38  
**B/W:** 0.03 lux at 50 IRE, F1.38  
0 lux with IR illumination on

### Shutter speed

1/30500 s to 2 s

### Camera adjustment

Pan  $\pm 190^\circ$ , tilt  $-45$  to  $+80^\circ$ , rotation  $\pm 95^\circ$

## System on chip (SoC)

### Model

ARTPEC-9

### Memory

2 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

**16:9:** 2560x1440  
**16:10:** 1920x1200  
**4:3:** 2592x1944

### Frame rate

Up to 25/30 fps (50/60 Hz) in all resolutions

### Video streaming

Up to 20 unique and configurable video streams<sup>1</sup>  
Axis Zipstream technology in AV1, H.264 and H.265  
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

### Multi-view streaming

Up to 7 individually cropped out view areas

### Noise reduction

Spatial filter (2D noise reduction)  
Temporal filter (3D noise reduction)

### Image settings

Saturation, contrast, brightness, sharpness, white balance, day/night threshold, local contrast, tone mapping, exposure mode, exposure zones, defog, barrel distortion correction, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, dynamic text and image overlay, overlay widget, privacy masks, target aperture

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.

## Image processing

Axis Zipstream, Forensic WDR, Lightfinder 2.0, OptimizedIR

## Pan/Tilt/Zoom

Digital PTZ, preset positions  
Guard tour, control queue

## Audio

### Features

Automatic gain control  
10-band graphic equalizer for audio input  
Speaker pairing

### Streaming

Configurable duplex:  
One-way (simplex, half duplex)  
Two-way (half duplex, full duplex) through edge-to-edge technology or portcast

### Input

Input for external unbalanced microphone, optional 5 V microphone power<sup>2</sup>  
Digital input, optional 12 V ring power<sup>2</sup>  
Unbalanced line input<sup>2</sup>  
Built-in microphone: MEMS microphone<sup>3</sup>  
Input through portcast technology

### Output

Output through speaker pairing or portcast technology

### 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

## Microphone

### SNR

66 dB(A) (94 dB SPL @ 1 m)<sup>3</sup>

### Max SPL

129 dB (10% THD)<sup>3</sup>

### Frequency range

20 Hz to 20 kHz, +/- 0.5 dB for analog mic/line input<sup>3</sup>

## Network

### Network protocols

IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>4</sup>, HTTP/2, TLS<sup>4</sup>, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP<sup>®</sup>, 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<sup>®</sup>, metadata and AXIS Camera Application Platform (ACAP); specifications at [axis.com/developer-community](https://axis.com/developer-community).  
One-click cloud connection  
ONVIF<sup>®</sup> Profile G, ONVIF<sup>®</sup> Profile M, ONVIF<sup>®</sup> Profile S, and ONVIF<sup>®</sup> Profile T, specifications at [onvif.org](https://onvif.org)  
Support for Voice over IP (VoIP) through the Session Initiation Protocol (SIP), using peer-to-peer (P2P) or Private Branch Exchange (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](https://axis.com/vms).

### Onscreen controls

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

### Edge-to-edge

Speaker pairing  
Siren and light pairing

2. Only valid for AXIS P3277-LVE.

3. Only valid for AXIS P3277-LVE Mic.

4. 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)).

## Event conditions

Application  
Audio: audio detection  
Device status: above/below/within operating temperature, casing open, IP address blocked/removed, live stream active, network lost, new IP address, ring power overcurrent protection, system ready  
Digital audio: digital signal contains Axis metadata, digital signal has invalid sample rate, digital signal missing, digital signal okay  
Edge storage: recording ongoing, storage disruption, storage health issues detected  
I/O: digital input, manual trigger, virtual input  
MQTT: stateless  
Scheduled and recurring: schedule  
Video: average bitrate degradation, day-night mode, tampering

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## Event actions

Day-night mode  
Defog: Set Defog mode, set Defog mode while the rule is active  
I/O: toggle I/O once, toggle I/O while the rule is active  
Illumination: use lights, use lights while the rule is active  
LEDs: flash status LED, flash status LED while the rule is active  
MQTT: publish  
Notification: HTTP, HTTPS, TCP and email  
Overlay text  
Recordings: SD card and network share  
Security: erase configuration  
SNMP traps: send, send while the rule is active  
Images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email  
WDR mode

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## Built-in installation aids

Pixel counter, remote zoom and focus, straighten image, level grid

## Analytics

### Applications

#### Included

AXIS Object Analytics, AXIS Image Health Analytics, AXIS Scene Metadata, AXIS Live Privacy Shield, AXIS Video Motion Detection  
AXIS Audio Analytics<sup>5</sup>

#### Supported

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

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## AXIS Object Analytics

**Object classes:** humans, vehicles (types: cars, buses, trucks, bikes, other)  
**Scenarios:** line crossing, object in area, time in area, crossline counting, occupancy in area, tailgating detection, PPE monitoring<sup>BETA</sup>, motion in area, motion line crossing  
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

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## AXIS Image Health Analytics

### Detection settings:

Tampering: blocked image, redirected image  
Image degradation: blurred image, underexposed image  
**Other features:** sensitivity, validation period

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## AXIS Audio Analytics

**Features:** sound pressure level, adaptive audio detection, audio classification<sup>5</sup>  
**Audio classes:** scream, shout, glass break, speech, coughing fit<sup>5</sup>  
**Event metadata:** audio detections, classifications<sup>5</sup>

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## AXIS Scene Metadata

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

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## AXIS Live Privacy Shield

**Object classes:** Humans, (entire body or face only), license plates, backgrounds  
**Masking type:** Pixelated with adjustable block size, color (solid), masking inclusion and exclusion areas  
**Other features:** Dynamic masking up to 10 fps.  
Supports multiple dynamically masked streams, and one unmasked stream with full frame rate, simultaneously.

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## Approvals

### Product markings

UL/cUL, CE, KC, EAC, VCCI, RCM, ICES, UKCA, FCC

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### Supply chain

TAA compliant

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5. Only valid for variant with built-in microphone

## EMC

CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-3-2, 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: KC KN35, KC KN32 Class A

USA: FCC Part 15 Subpart B Class A

Railway: IEC 62236-4

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## Safety

CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3, IEC/EN 62471 risk group exempt

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## 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, IEC/EN 62262 IK10, NEMA 250 Type 4X

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## Network

NIST SP500-267, IPv6 USGv6

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## 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)

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### Network security

IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>6</sup>, IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS<sup>6</sup>, TLS v1.2/v1.3<sup>6</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

Plastic casing and weathershield

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](https://axis.com/warranty-implication-when-repainting).

This product can be repainted.

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### Mounting

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

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### Power

Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3

Max 12.6 W, typical (heater off, IR off) 4.7 W

Features: power meter

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### Environmental sensors

Environmental sensors through portcast technology accessories. For more information, see *Optional accessories*.

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### I/O functionality

I/O: Terminal block for one configurable supervised input/digital output (12 V DC output, max load 25 mA)  
I/O connectivity through portcast technology accessories. For more information, see *Optional accessories*.

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### Connectors

Network: RJ45 10BASE-T/100BASE-TX PoE

I/O: 4-pin 2.5 mm terminal block for 1 alarm input and 1 output

Audio: 3.5 mm mic/line in<sup>7</sup>

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6. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://www.openssl.org)), and cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).

7. Only valid for variant without built-in microphone

## IR illumination

Optimized IR with power-efficient, long-life 850 nm IR LEDs  
Range of reach 40 m (130 ft) or more depending on the scene

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## 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](http://axis.com)

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## Operating conditions

Temperature: -40 °C to 50 °C (-40 °F to 122 °F)  
Maximum temperature according to NEMA TS 2 (2.2.7):  
74 °C (165 °F)  
Start-up temperature: -30 °C (-22 °F)  
Humidity: 10–100% RH (condensing)

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## Storage conditions

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

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## Dimensions

For the overall product dimensions, see the dimension drawing in this datasheet.  
Effective Projected Area (EPA): 0.023 m<sup>2</sup> (0.075 ft<sup>2</sup>)

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## Weight

850 g (1.9 lb)

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## Box content

Camera, weathershield, installation guide, terminal block connector, connector guard, cable gasket, owner authentication key

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## System tools

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

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## Languages

English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese

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## Warranty

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

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## Part numbers

Available at [axis.com/products/axis-p3277-lve#part-numbers](http://axis.com/products/axis-p3277-lve#part-numbers)

## Optional accessories

### Portcast

AXIS T61 MkII Audio and I/O Interface Series  
AXIS D6210 Air Quality Sensor

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### Installation

AXIS T8415 Wireless Installation Tool

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### Mounting

AXIS TP3206-E Recessed Mount, AXIS TP3103-E Pendant Kit

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### Storage

AXIS Surveillance Cards

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For more accessories, go to [axis.com/products/axis-p3277-lve#accessories](http://axis.com/products/axis-p3277-lve#accessories)

## 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 2015/863, and standard EN IEC 63000:2018  
REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see [echa.europa.eu](http://echa.europa.eu)

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### Materials

Renewable carbon-based plastic content: 45% (bio-based: 43%, carbon capture based: 2%)  
Screened for conflict minerals in accordance with OECD guidelines  
To read more about sustainability at Axis, go to [axis.com/about-axis/sustainability](http://axis.com/about-axis/sustainability)

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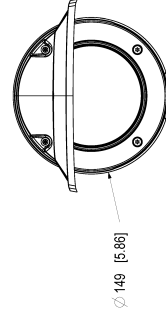
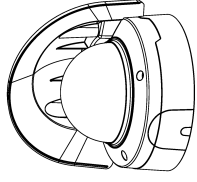
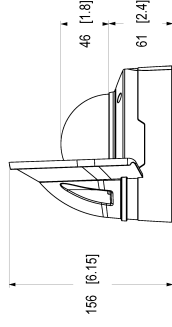
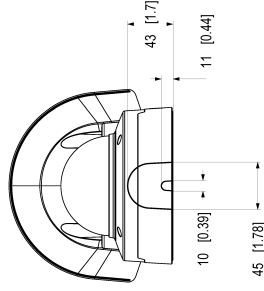
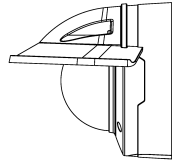
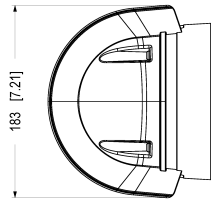
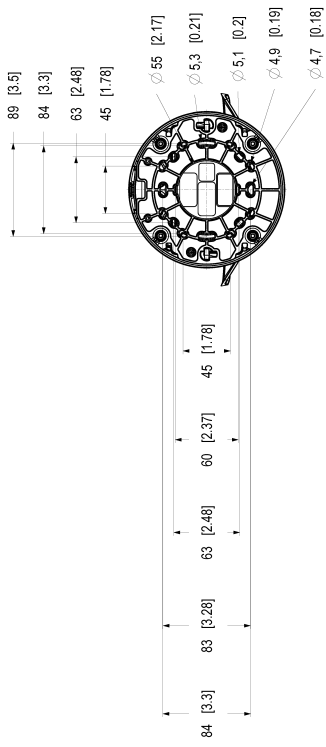
### Environmental responsibility

[axis.com/environmental-responsibility](http://axis.com/environmental-responsibility)  
Axis Communications is a signatory of the UN Global Compact, read more at [unglobalcompact.org](http://unglobalcompact.org)

## Detect, Observe, Recognize, Identify (DORI)

	DORI definition	Distance (wide)	Distance (tele)
Detect	25 px/m (8 px/ft)	60 m (197 ft)	170 m (558 ft)
Observe	63 px/m (19 px/ft)	24 m (79 ft)	67 m (220 ft)
Recognize	125 px/m (38 px/ft)	12 m (39 ft)	34 m (112 ft)
Identify	250 px/m (76 px/ft)	6 m (20 ft)	17 m (56 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.



## 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](https://axis.com/solutions/edge-vault).

### AXIS Live Privacy Shield

Remotely monitor activities both indoors and outdoors while safeguarding privacy in real-time.

With AI-based dynamic masking you can choose what to mask or blur while addressing rules and regulations protecting privacy and personal data. The application enables masking of moving and still objects such as humans, license plates, or backgrounds. The application works in real-time and on both live and recorded video streams.

### 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.

### 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.