

## AXIS P1465-LE Bullet Camera

Fully featured, all-around 2 MP surveillance

Based on ARTPEC-8, AXIS P1465-LE delivers excellent image quality in 2 MP. It includes a deep learning processing unit enabling advanced features and powerful analytics based on deep learning on the edge. With AXIS Object Analytics, it can detect and classify humans, vehicles, and types of vehicles. Available with a wide or tele lens, this IP66/IP67, NEMA 4X, and IK10-rated camera can withstand winds up to 50 m/s. Lightfinder 2.0, Forensic WDR, and OptimizedIR ensure sharp, detailed images under any light conditions. Furthermore, Axis Edge Vault protects your Axis device ID and simplifies authorization of Axis products on your network.

- > [Lightfinder 2.0, Forensic WDR, OptimizedIR](#)
- > [Analytics with deep learning](#)
- > [Audio and I/O connectivity](#)
- > [Built-in cybersecurity features](#)
- > [Two lens alternatives](#)



# AXIS P1465-LE Bullet Camera

## Camera

### Variants

AXIS P1465-LE 9 mm  
AXIS P1465-LE 29 mm

### Image sensor

1/2.8" progressive scan RGB CMOS  
Pixel size 2.9 µm

### Lens

Varifocal, remote focus and zoom, P-Iris control, IR corrected

#### 9 mm:

Varifocal, 3-9 mm, F1.6-3.3  
Horizontal field of view 117°-37°  
Vertical field of view 59°-20°  
Minimum focus distance: 0.5 m (1.6 ft)

#### 29 mm:

Varifocal, 10.9-29 mm, F1.7-1.7  
Horizontal field of view 29°-11°  
Vertical field of view 16°-6°  
Minimum focus distance: 2.5 m (8.2 ft)

### Day and night

Automatic IR-cut filter  
Hybrid IR filter

### Minimum illumination

0 lux with IR illumination on

#### 9 mm:

Color: 0.06 lux, at 50 IRE F1.6

B/W: 0.01 lux, at 50 IRE F1.6

#### 29 mm:

Color: 0.06 lux, at 50 IRE F1.7

B/W: 0.01 lux, at 50 IRE F1.7

### Shutter speed

With Forensic WDR: 1/37000 s to 2 s

No WDR: 1/71500 s to 2 s

## System on chip (SoC)

### Model

ARTPEC-8

### Memory

1024 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

16:9: 1920x1080 to 160x90

16:10: 1280x800 to 160x100

4:3: 1280x960 to 160x120

### 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<sup>1</sup>

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)

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 settings

Saturation, contrast, brightness, sharpness, white balance, day/night threshold, exposure mode, exposure zones, defogging, compression, orientation: auto, 0°, 90°, 180°, 270° including corridor format, mirroring of images, dynamic text and image overlay, polygon privacy masks, barrel distortion correction  
Scene profiles: forensic, vivid, traffic overview  
29 mm: Electronic image stabilization

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## Image processing

Axis Zipstream, Forensic WDR, Lightfinder 2.0, OptimizedIR

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## Pan/Tilt/Zoom

Digital PTZ, digital zoom

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## Audio

### Audio features

AGC automatic gain control  
Network speaker pairing

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### Audio streaming

Configurable duplex:  
One-way (simplex, half duplex)  
Two-way (half duplex, full duplex)

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### Audio input

10-band graphic equalizer  
Input for external unbalanced microphone, optional 5 V microphone power  
Digital input, optional 12 V ring power  
Unbalanced line input

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### Audio output

Output via network speaker pairing

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### Audio encoding

24bit LPCM, AAC-LC 8/16/32/44.1/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Opus 8/16/48 kHz  
Configurable bit rate

## Network

### Network protocols

IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>2</sup>, HTTP/2, TLS<sup>2</sup>, 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)

## 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](https://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](https://onvif.org)

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### 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).

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### Onscreen controls

Autofocus  
Day/night shift  
Defogging  
Video streaming indicator  
Wide dynamic range  
IR illumination  
Privacy masks  
Media clip  
29 mm: Electronic image stabilization

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2. 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 ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).

## Event conditions

Application

Device status: above operating temperature, above or below operating temperature, within operating temperature, IP address removed, 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, manual trigger, virtual input  
MQTT: subscribe  
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  
Illumination: use lights, use lights while the rule is active  
MQTT: publish  
Notification: HTTP, HTTPS, TCP and email  
Overlay text  
Recordings: SD card and network share  
SNMP traps: send, send 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

Pixel counter, remote zoom (3x optical), remote focus, auto rotation

## Analytics

### Applications

Included

AXIS Object Analytics, AXIS Scene Metadata, AXIS Image Health Analytics, AXIS Live Privacy Shield, AXIS Video Motion Detection, active tampering, shock detection

Supported

AXIS Perimeter Defender, AXIS License Plate Verifier, AXIS Speed Monitor<sup>3</sup>  
Support for AXIS Camera Application Platform enabling installation of third-party applications, see [axis.com/acap](https://axis.com/acap)

## AXIS Object Analytics

Object classes: humans, vehicles (types: cars, buses, trucks, bikes, other)

Scenarios: line crossing, object in area, occupancy in area, time 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 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), license plates

Object attributes: Vehicle color, upper/lower clothing color, confidence, position

## Approvals

### Product markings

CSA, UL/cUL, BIS, UKCA, CE, KC, EAC

### Supply chain

TAA compliant

### EMC

CISPR 35, CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2

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

CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3, IEC/EN 62471 risk group exempt, 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, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9)

3. It also requires AXIS D2110-VE Security Radar with firmware 10.12 or later.

## 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)<sup>4</sup>, IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS<sup>4</sup>, TLS v1.2/v1.3<sup>4</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/IP67-, NEMA 4X-, and IK10-rated casing

Polycarbonate blend and aluminium

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).

### Power

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

Typical: 7.9 W, max 12.95 W

10–28 V DC, typical 7.2 W, max 12.95 W

## Connectors

Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T

Audio: 3.5 mm mic/line in

I/O: Terminal block for 1 alarm input and 1 output (12 V DC output, max. load 25 mA)

Power: DC input

## IR illumination

Optimized IR with power-efficient, long-life 850 nm IR LEDs

**9 mm:**

Range of reach 40 m (131 ft) or more depending on the scene

**29 mm:**

Range of reach 80 m (262 ft) or more 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](https://axis.com)

## Operating conditions

–40 °C to 60 °C (–40 °F to 140 °F)

Maximum temperature according to NEMA TS2 (2.2.7): 74 °C (165 °F)

Start-up temperature: –40 °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

Ø132 x 132 x 280 mm (Ø5.2 x 5.2 x 11.0 in)

Effective Projected Area (EPA): 0.022 m<sup>2</sup> (0.24 ft<sup>2</sup>)

## Weight

With weather shield:

1.2 kg (2.65 lb)

## Box content

Camera, installation guide, TORX® L-keys, terminal block connector, connector guard, cable gaskets, AXIS Weather Shield L, owner authentication key

## Optional accessories

AXIS T94F01M J-Box/Gang Box Plate, AXIS T91A47 Pole Mount, AXIS T94P01B Corner Bracket, AXIS T94F01P Conduit Back Box, AXIS Weather Shield K, Axis PoE Midspans

For more accessories, go to [axis.com/products/axis-p1465-le#accessories](https://axis.com/products/axis-p1465-le#accessories)

4. 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).

## System tools

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

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## Languages

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

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## Warranty

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

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## Part numbers

Available at [axis.com/products/axis-p1465-le#part-numbers](https://axis.com/products/axis-p1465-le#part-numbers)

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## 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](https://axis.com/partner).

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### Materials

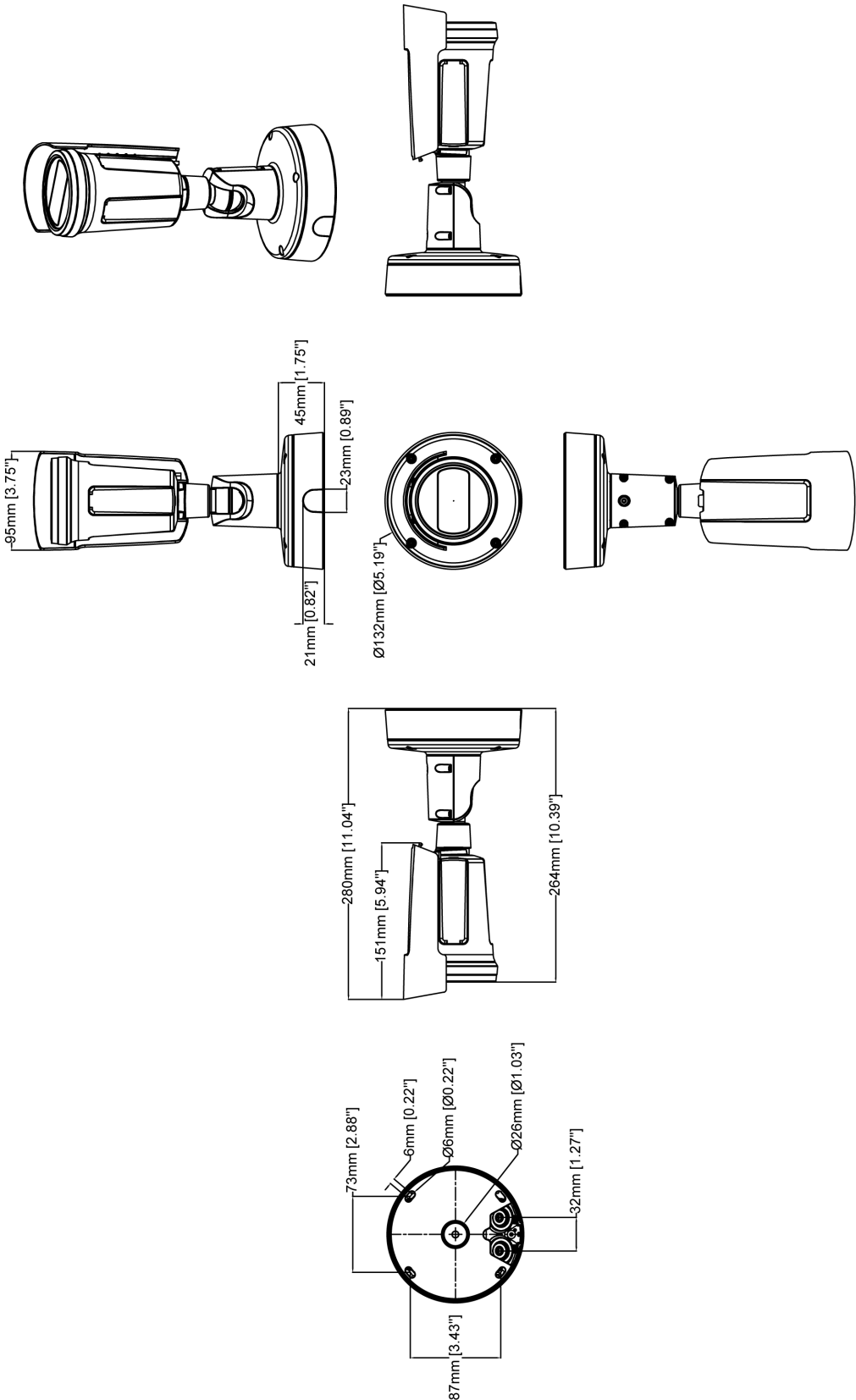
Screened for conflict minerals in accordance with OECD guidelines  
To read more about sustainability at Axis, go to [axis.com/about-axis/sustainability](https://axis.com/about-axis/sustainability)

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### Environmental responsibility

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

Dimension drawing



Revision	v.01	Revision date	2022-09-23
Paper size	A4	Release date	2022-09-23
Created by	MS	Scale	1:5

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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](https://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.

### 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.

### Two lens alternatives

The camera is available in two variants with a choice of lenses: a wide 3.9-9 mm lens for wide area surveillance and a tele 10-29 mm lens for surveillance from a distance.

### 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](https://axis.com/glossary)